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INTERWEAVING

AN APPROACH FOR PARTICIPATING IN CROSS-CULTURAL DESIGN

MARK L. GILLEM

1996

INTERWEAVING:

An Approach for Participating in Cross-Cultural Design

by

Mark L. Gillem

B. Arch. (University of Kansas) 1989

A thesis submitted in partial satisfaction of the

requirements for the degree of

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in

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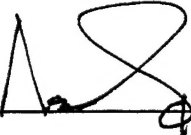
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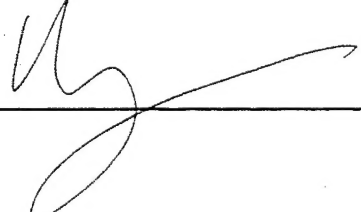
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University of California, Berkeley

1996

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the act of creating architecture rooted in the identified needs of the people it serves, anchored in the characteristics of the place it occupies, and transformed into a structure appropriate for its time

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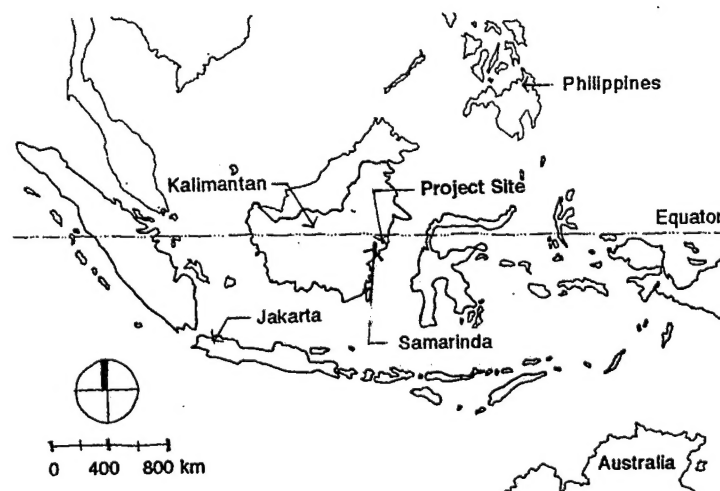
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PREFACE

Ikat cloth is made in Indonesia through a process that weaves together hand-spun threads that have been colored by using dyes from local plants and minerals. The weaving starts more than a year after the initial spinning of the thread and results in a beautiful fabric used in clothing, interior design, and traditional art. Like Ikat, this thesis is an attempt to interweave related threads of thought and process in an attempt to create an architecture appropriate for its contemporary cultural context.

The vehicle for this study is the design of a youth center near Samarinda, East Kalimantan, Indonesia (fig. 1). The youth center, which will ultimately provide educational and recreational opportunities for children throughout East Kalimantan, is the vision of a dedicated group of Indonesians who are affiliated with a local Christian church. They have formed a Board of Directors, known as the *Yayasan*, to plan for, develop, and manage the center, which will be located on a heavily forested 5 hectare site they have already purchased.

Fig. 1: Location Map. The site for the youth center is just north of Samarinda, East Kalimantan, Indonesia.



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Although the *Yayasan* did not have the resources to hire a design team, they did consider such assistance essential because of the detailed nature of the program and the complexities of the site. Consequently, they requested help from Engineering Ministries International (EMI), a Colorado Springs-based organization dedicated to providing pro bono design services to projects in developing countries. As a volunteer architect for EMI, I was invited to lead the design team for this project. Our small team consisted of myself, a civil engineer from EMI who was the trip coordinator, a structural engineer from Florida, an electrical engineer from Washington state, and a landscape designer from Alaska. As the team leader, I was responsible for establishing and implementing the process used during our site visit. All of the work in this thesis is the result of what I did in my capacity as the team leader and project architect.

I was very interested in pursuing this project for my thesis because I knew it would give me the opportunity to study, in depth, the issues of concern to designers working across cultures and across borders. I started with three broad questions:

- How can the needs of the users best be identified correctly, given the fact that we speak different languages and come from different cultures?
- What is the best way to anchor a design in its cultural and physical context?
- What transformations need to be made to bring the vision to life?

Throughout, the issue of time was critical. As members of a pro bono project, we could not afford to commit ourselves to months or even years of costly study and evaluation. Rather, we needed to focus quickly on the real issues and develop a strategy for decision-making that everyone could participate in, accept, and support.

The methodology I developed to guide this process brought together three main threads. First, to identify accurately the needs of the people involved - especially when working across cultures - architects must use a participatory mode of planning that lets all the voices be heard and valued. But at what stage or stages in the building process will users be participating? Planning, design, construction? If users participate in any or all of these stages, to what degree will they be involved? Is it only a matter of working together to identify spatial requirements or will the process allow the discussion to go beyond simple requirements analysis towards a mutual and supportive relationship where deeper issues relating to people and place are identified? Part One of this thesis, **Identifying**, focuses on these issues. In the first chapter, I concentrate on issues of concern to designers working across cultures. In the

second chapter, I present various perspectives that have influenced my thinking on participation as a method. In the third chapter, I weave together the lessons from the first two chapters and describe how I put these theoretical constructs into practice. I tell the stories of some of the people involved in the development of this project and share some of the results of our participatory process.

The second thread deals with anchoring the project in its context. Identifying the dreams, wants, and needs of the people who will be using an architectural project is an important first step in the act of interweaving. But there is more to a successful process than identifying the tangible and intangible requirements of a particular project for those that will inhabit it. For the Kalimantan culture, continuity and cohesion are critical in all aspects of life. In view of this, architecture becomes part of this integrated fabric of life and must be culturally anchored. To create an anchored architecture, I have spent a significant amount of time trying to achieve some level of understanding about the local language of building. With such knowledge, I hope to create an architectural design utilizing the local vocabulary. But, rather than repeat what others have said, I can use their language to create something that responds to the specifics of this project. Part two of this thesis, **Anchoring**, is my place-specific vocabulary lesson. In chapter four, I look closely at the actual site and the micro and macro climate. In chapter five, I present general principles of design that, where appropriate, inform the architecture of the youth center. I derived these principles from my survey of Kalimantan villages and buildings.

The third thread in the process of interweaving involves the transformation of the identified goals and of the relevant principles of the regional building language into an architectural solution appropriate for its time and place. Part three of this thesis, **Transforming**, documents this effort. In chapter six, I review relevant theories on transformation. In chapter seven, I present the actual design. In the end, design is what architects do -- we help transform dreams into reality. It is a challenging proposition. Architects are invited to participate in the lives of others and to help them create places that support their daily activities. This is what I love about architecture. To make these transformations, as an architect I must understand not only who the clients are as people, but I must also understand myself, where I have been, and where I want to go. It also involves realizing that I may gain more than I offer because, through an intervention of this nature, I can learn as much about myself and my way of being as I can learn about another culture and another place.

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PART ONE

IDENTIFYING

If one is lucky, a solitary fantasy can totally transform one million realities.

Maya Angelou

CHAPTER ONE

KERJA ARCITEK, DARI AMERIKA: WORKING ACROSS CULTURES

During my visit to Long Sule, a small village set deep in the jungles of Borneo, I met a number of children who followed me wherever I went. As it began to rain one afternoon, we went inside the home where I would be staying. Together, we made paper airplanes and decided to see whose would fly the furthest. Two little girls, Sumi and Rut, consistently had the longest "air time." All the boys were a bit disgusted but they did not take the time to craft their planes as carefully as the girls did. Later, I found out that this careful attention to detail makes the girls highly employable in the many manufacturing plants operating in the more urbanized areas of Indonesia. When I talked with Sumi's parents, they were worried about the eventuality of moving to a city and the repercussions that would have on their daughter. Moving from village to city is more common now because of the economic and educational opportunities available in urban areas. But would Sumi have to work in a manufacturing plant? How would this family's lives be changed in such a move? I did not have any answers, but I knew that such a move could bring stress and change into their lives.

This project is more than just a group of buildings. It is part of a larger societal fabric created to help families adjust to the stresses of a changing lifestyle and a changing culture. For architects working across cultures, understanding dynamic local customs and beliefs is part of the challenge.

In this chapter, I will present information from others regarding culture, information that has influenced my thinking. Also, I will offer some reasons why architects should study the culture they are working within. I will then look specifically at some cultural issues relevant to Indonesia in general and Kalimantan in particular. I will conclude by introducing one of many methods that can facilitate cross-cultural dialogue and understanding.

SOME DEFINITIONS OF CULTURE

Before I go any further, I think it is important to offer a working definition of *culture*. One standard definition from the *American Heritage Dictionary* is as follows: "Culture is the totality of socially transmitted behavior patterns, arts, beliefs, institutions and all other products of human work and thought characteristic of a community or population."¹ Rapoport proposes a helpful three-part definition that views "... culture as a way of life typical of a group; culture as a system of symbols and meanings transmitted through symbolic codes; and culture as a set of adaptive strategies for survival related to resources and ecology."² Stea and Turan offer an integrated view of culture:

The view [of culture] that we support goes beyond the consideration of ritual, symbol, language, and transmission of cultural traits to an inclusion of traditional economy, resources, political systems, and ideology. In our view, then, culture is actually the totality of the society's treatment of these dimensions of existence. It is an ecological view in the sense that, rather than some of these aspects being central and others peripheral to culture, all are viewed as contributing equally and interactively to the cultural matrix.³

In a comparison of architectural paradigms of both modern and traditional societies, Helmy defines three components of the traditional societies that help focus the definitions of culture. The first component deals with metaphysical ideas and beliefs. These may include generic ordering principles, myths, and implied beliefs and ideas. The second component is concerned with socio-cultural paradigms which may include shared prototypes and models, conventions, theories, symbolic generalizations, and values, all for decision-making and problem solving. The third component deals with the shared constructs that a society uses at a more practical level, and these may be translated into standards, regulations, or performance criteria.⁴

All of these definitions are helpful since they point to some of the issues influencing the culture of a society. Specifically, I believe that a society's culture is the identifiable manifestation of its behavioral structure. While a study of this structure could never be complete, and the focus may be challenged, it is important--in the context of this thesis--to attempt such an investigation. Given that culture is specific to a society, an important question needs to be answered, "Why should architects study and work across cultures?"

WHY STUDY AND WORK ACROSS CULTURES?

Much has been written on the subject of culture and how it relates to built form. Academic sub-disciplines have grown up around the concept and numerous

conferences, articles, and books have documented the opinions of people involved in the study of culture and built form. I do not intend to summarize this debate; I do want to look at the issue from a slightly different perspective. For me it is a practical concern: What do architects who are working across cultures need to understand about culture and built form? Without compromising their own beliefs, how can architects work within the cultures of others? What role does culture play in the development of an architectural proposal?

Architecture is a part of culture. In any architectural project, a cultural understanding is important, especially if one believes Rapoport's hypothesis that built form "...is not simply the result of physical forces or any single causal factor, but is the consequence of a whole range of socio-cultural factors seen in their broadest terms."⁵ Helmy seems to reinforce this notion when he speaks of architecture "...as a constituent process of socio-cultural activity. Which means to speak of 'an architecture' as referring not so much to buildings as to the world-views, principles and practices that inform them and condition their production...."⁶ Also, Gulgonen, who has worked across cultures as an architect, believes that "Any work, unique or otherwise, large or small-scale, must be integrated into a cultural context. Quite simply, every building is cultural."⁷ Rapoport implores designers to look carefully at the culture of the area they are working in because "...whatever the topic of interest ... whatever the question posed ... it is always the cultural landscape which needs to be described, studied, analyzed and understood."⁸

The world is shrinking. As part of a cultural endeavor, architecture is an intervention into the lives of other people. Therefore, an understanding of the beliefs, traditions, and lifestyles of the people being served by the architecture is critical in the development of an effective solution. As architects volunteer or are commissioned to do work outside of their own country, they must be prepared to learn about the culture in which they are intervening. Many architects are working "...in a wide range of countries and cultural contexts. Even if they [work outside] their country of origin, they can nowadays make contacts and pass on their knowledge and skill, making it available to a number of countries...."⁹ Because of improved methods of communication and travel the world is getting smaller. My experience in Indonesia is just one example of this shrinking world. This global change can be seen as an opportunity. According to Faghih, "We have recently entered an era of exchange -- exchange of people, information, ideas, and work, because of faster methods of communication. This phenomenon will be the real revolution of the twenty-first century."¹⁰

There is a personal benefit. Studying and working in other cultures is more than understanding "them." It also is about understanding oneself. On a simple level, the desire to work across cultures can motivate architects to learn more about themselves and their profession. In my case, this was a contributing factor in deciding to attend graduate school and undertake this thesis. The lessons learned in this thesis will help me improve my capabilities as an architect working in my own culture, as well as when I work across cultures. As Spiro Kostof stated, "... by studying other cultures and peoples, we are putting ourselves in context.' There is a point at which we must agree that the study of 'others' is fundamentally for our own well-being, not for theirs."¹¹ According to Foucault, it is "...difficult to see present cultural practices critically from within them..."¹² so working across cultures enhances one's ability to look critically at other cultural practices and learn from them as a means of anchoring architectural interventions within a cultural setting. And, just as migration among Indonesians has led to a heightened awareness of ethnic identity in individuals as they encounter other ethnic groups,¹³ migration across cultures for purposes of architectural design can heighten an awareness of one's own identity--in positive and negative terms. Thomas adds that "Thinking that we are encountering something outside of ourselves or Western culture, we end up merely discovering 'the other' within ourselves."¹⁴

Understanding variations within and across cultures. Another reason for studying cultures, especially those that one may be working in, is that there are many variations across even seemingly similar cultures. Generalizing from personal experience or from one's own culture without first learning about the culture of the place can lead to errors and contradictions which can negatively impact the architectural intervention. Bower found that even within similar environments (e.g. tropical rain-forests), socio-cultural factors influenced built form to the extent that "markedly different habitations" were constructed by the people of each place.¹⁵ Moreover, Rapoport states that "This variability cross-culturally...is especially marked in traditional (vernacular, folk) landscapes. These tend to vary in space, but change slowly. They are thus highly group specific, producing variety."¹⁶ He adds that this variability can be "diagnostic of groups -- whether through the use of house forms, village and field forms, street patterns, gardens and plants, or other elements."¹⁷ Since this thesis deals in part with the study of traditional landscapes, Rapoport's point is critical. In Indonesia, this variability is due in part to the thick vegetation, mountainous terrain, and division of the country into thousands of islands. Taken together, these factors have made communication among islands and among different locations on these islands difficult, and these factors have had

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a clear effect on the cultures and histories of the various ethnic groups that make up the nation of Indonesia.¹⁸ An Indonesian sociologist, Harsya Bachtiar, believes there are four distinct cultural systems that currently exist in Indonesia.

1) indigenous or ethnic cultural systems, a legacy of the ancestors of the mythical past, 2) cultural systems brought about by religions such as Hinduism, Buddhism, Islam and Christianity, 3) an Indonesian cultural system which was established only recently to integrate peoples of Indonesia as a nation, 4) Western or foreign cultural systems. Each of these cultures, according to Bachtiar, has its own system of knowledge and architectural principles.¹⁹

In this project, I am attempting to understand each of these cultural systems and integrate appropriate lessons from them into the final solution. While Bachtiar believes that western cultural systems need not be accommodated, I am forced to do so if only because I am a product of western culture.

CONCERNS IN WORKING ACROSS CULTURES

The privilege to work with people in another country and of another culture should not be taken lightly. There are implications to such work that go beyond the technical assistance an architect may provide. First, there are some limitations to the concept of culture I have been identifying that should be addressed. Second, the intervention by architects from developed countries into developing countries may be seen by some as just another form of imperialism.

Limitations to cultural studies. One limitation is in the definition of the term itself. What I presented were inclusive definitions of culture that can be viewed by some as wrong. For example, Cameron "...claims that the use of 'culture' to signify the whole of the socio-political processes of society is incorrect; rather, he sees economic, social, and political aspects of society as primary and cultural processes as secondary."²⁰ Also, there has been much discussion regarding the relationship between built form and culture. The debate revolves around the question, "Does culture determine built form?" Although criticized by some for believing that culture is a determinant of built form, Rapoport goes to great lengths to deny that claim. "One does not translate culture into built form. Rather, culture is transmitted, through human actions, through a series of intermediate steps, into built form."²¹ Thinking that a study of culture can lead to architectural solutions, then, is naive. Another limitation to cultural studies involves the passing of time. As modernization influences traditional societies, their cultural specificity is marginalized. This results in a reduction of unique cultures and blurs the distinction among cultures.²² Studying such cultures can be complicated and may result in contradictory findings.

While difficult to ascertain, motivations for studying cultures can be brought into question and may be less than pure. For instance, in Indonesia, there is a long history of searching for a cultural identity in architecture, especially among the Dutch colonizers in the nineteenth and twentieth centuries. Their search was motivated in part by political interests aimed at keeping unique cultural systems alive as a way of impeding national unity.²³ For the Dutch, socio-cultural study "...was in fact a handmaiden of the colonization process, as it helped the Dutch empire to rediscover the colony, this time not through its natural resources, but through its people, culture and history."²⁴ Even in contemporary Indonesian society, this preoccupation with cultural identity, according to Sudradjat, has "regrettably had a more negative than positive impact upon architectural development in Indonesia as it [tends] to blind Indonesian architects to contemporary reality such as housing shortages, urbanization, poverty, and the environmental crisis."²⁵ This focus on cultural identity may also be inappropriate because the spiritual basis for that culture may have changed over time, and taking that cultural environment as the starting point may deny the existence of new values and beliefs.²⁶

Remnants of imperialism? Because architects bring their own attitudes and beliefs with them as they intervene in other cultures, working across cultures may be seen initially as a remnant of imperialism. In fact, the practice of architecture itself may be a form of colonialism when the the architect uses professional knowledge and experience to maintain or extend control over a client group. This is especially true when architects of European descent travel to countries in the developing world that were once colonized by European powers -- as was the case with Indonesia in the seventeenth century when the Dutch colonized the islands. If imperialism is about exporting one's own culture and power to a subjugated people, and if this is the attitude taken, then working across cultures can be one form of cultural domination. However, the view that a culture is worth exporting has been questioned for several centuries.

As early as the late eighteenth century, Europeans had been forced to alter their view of a universal history centered in Europe. Paradoxically, this alteration resulted from the very imperialistic, overseas expansion that drew its ideological justification from the belief that reason, progress, and enlightenment emanated from the west. Brought into contact with such various cultures, Europeans found it impossible to retain belief in one universal culture. Instead there were many cultures, each with its own history.²⁷

In Indonesia, the Dutch experienced this change and in the late nineteenth century they shifted from their policy of exploitation to an "Ethical Policy" based

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on a concern for the welfare of Indonesians. Nevertheless, this policy was still a form of imperialism because the motivation was to provide access to a presumably higher culture (Dutch) in order to repay a debt of honor to people that were considered unable to help themselves.²⁸ Today, however, Indonesians control their own country, and, since 1945, when independence was secured from the Dutch, the country has been on a path toward increasing freedom and cultural homogenization due to the government's unity in diversity campaign.

Cross-cultural design need not be considered a form of imperialism, rather such work can actually be seen as a positive experience for all involved. If the attitude is one of service in the spirit of humility, and if the assistance comes at the invitation of the people to be served, the claim is invalid. Moreover, by acknowledging the worth and importance of the ideas, attitudes, and beliefs of the users, the architect is recognizing the value of their input and is allowing the users to help themselves. Also, as AlSayyad and Bourdier point out, such interventions can be seen as "...break points in the history of nations and people when new traditions are born out of hybridization...."²⁹

UNDERSTANDING THE CULTURES OF THE PLACE: *PANCASILA*

In order to create a more sensitive architecture outside of one's own environment, cultural study can become a tool to facilitate an understanding of the cultures of the place. A starting point for understanding the diverse cultures found throughout Indonesia is *Pancasila* (Five Principles) (fig. 2). First espoused by President Sukarno in 1945, *Pancasila* sets out the philosophical basis that underlies the country's social structure.³⁰ There are five guiding principles in *Pancasila*³¹:



Fig. 2: The Indonesian coat of arms symbolically incorporates the five principles of *Pancasila*.

- 1) Religious faith within the context of a diverse, multi-religious state (symbolized by the star)
- 2) humanity or the unbroken unity of humankind (symbolized by the chain)
- 3) nationalism in which all ethnic groups unite under a sovereign government (symbolized by the buffalo head)
- 4) representative government based on the village system where deliberation is used to achieve consensus (symbolized by the banyan tree)
- 5) social justice which means that a prosperous and just society supplies basic necessities for all (symbolized by the sprays of rice and cotton)

Complementing *Pancasila* is the national credo *Bhinneka Tunggal Ika*, which means unity in diversity.³² Since there are more than 300 ethnic groups living on Indonesia's 13,600 islands this credo takes on added importance.³³ I found that

this national ideology has penetrated into even the remote villages I visited. In both villages, Long Sule and Pepa Baru, people I asked at random could recite the principles and expressed a belief in them. Even some of the children knew Pancasila by memory. While this may be the result of an effective educational campaign, it may also represent a real desire for unity within the great diversity of this island nation. As Sudradjat claims, "this unity is to be found through the past, by paying homage and respect to the memory of ancestors, by cherishing and maintaining cultural tradition, and by emphasizing common trends that run through obvious differences."³⁴ I will briefly look at some of the impacts of each principle of Pancasila and discuss how these principles might have influenced architectural form.

1. Religious Faith. As a whole, Indonesia has a history of changing religious affiliations. Initially, the majority religion was animism or belief that all animate or inanimate objects have their own life force. As Hinduism and then Buddhism filtered into the archipelago from the north a gradual conversion took place. Then, in the 15th and 16th centuries, Islam made inroads and is now the professed religion of 90% of Indonesians.³⁵ Mosques and prayer rooms can be found in all the major cities. The shifting religious alliances can be traced in the changing shape of the predominant Indonesian religious buildings. In societies where material surpluses are scarce, most of the surplus is reserved for special types of buildings such as religious ones.³⁶ Hence, they make for a telling case study of a culture's adaptation to religious change and built form. Despite the

seemingly drastic conversions from one religious system to another, the religious buildings changed only slightly. The striking meru, a Balinese pagoda, most likely began with animism. The largest merus had eleven roofs, with each one dedicated to a different deity.³⁷ These forms were then absorbed by Hinduism and symbolized the cosmic heavenly mountain, Mahameru. The eleven roofs dwindled to three and these represented the trinity of Hindu gods.³⁸ With the introduction of Islam by traders in the

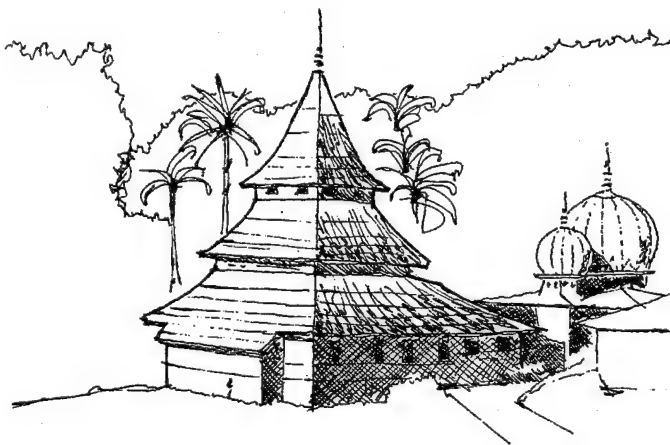


Fig. 3: A contemporary mosque with its domed roof is set next to a traditional mosque with a three-tiered-roof form that evolved from the Balinese meru (after Dawson and Gillow, 1994).

15th century, and the widespread acceptance of this religion, the meru was again transformed, this time into a mosque. The three roofs remained and the same square plan with four main supports remained the primary typology. Over time, however, the more typical mosque with its graceful domes took hold in many areas (fig. 3). However, many new mosques today in Indonesia are

returning to the traditional meru form. For instance, the mosque at the recently constructed University of Indonesia at Depok utilizes the characteristic three-tiered roof form. The subtle changes in building form, despite drastic changes in religious beliefs, supports Rapoport's assertion that viewing religion as deterministic of built form is simplistic.³⁹ Furthermore, Abel sees these changes to architectural form more as an indicator of "...architectural continuities [rather] than any romantic ideal of pure culture."⁴⁰ Also, by adapting Islamic practices to a developed building typology, rather than wholly importing more typical forms, potential conflicts between old and new ways of living could be minimized.⁴¹

2. Humanity. This principle may be best reflected in the concept of *gotong royong* which is a system of voluntary, mutual self help among relatives, friends, and neighbors.⁴² Since there is a unity among people implied in the principle of humanity, *gotong royong* is a natural extension of this unity. This traditional form of self-help may have its origins in the basic unit of government in Indonesia, the village--which provides welfare, support, and guidance to its people. If a fire destroys a house or a well, everyone pitches in to rebuild.⁴³ Some cultural anthropologists believe that this spirit of cooperation evolved out of the ancient and longstanding agricultural pattern based on wet rice cultivation that required coordination among people and across villages.⁴⁴

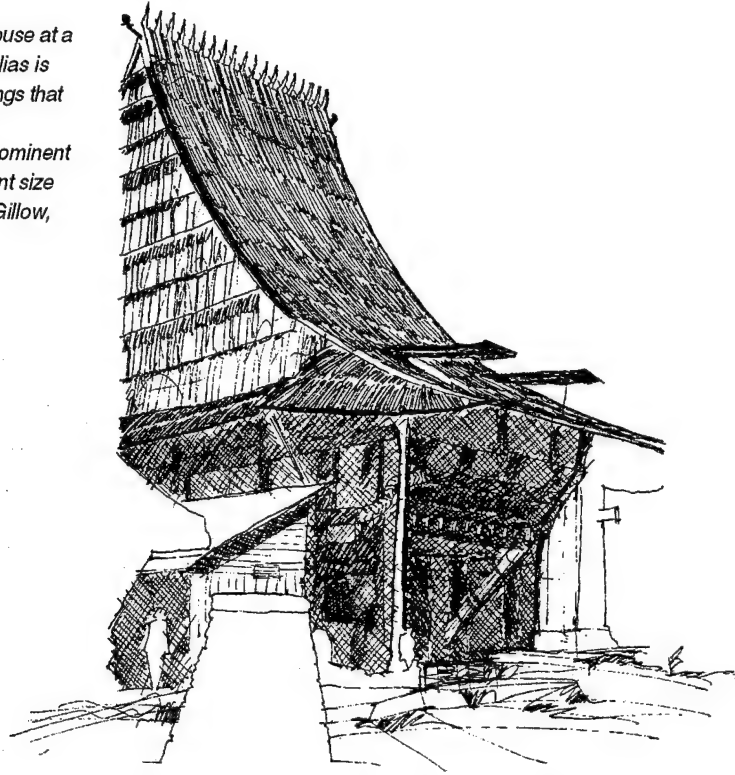
Despite the diversity of people, religions, cultures, and languages in Indonesia, the nation itself is surprisingly unified, and this is exemplary of this principle proclaiming the unity of humankind.⁴⁵ In the villages I visited, this principle was demonstrated to me as the villagers worked together to build a new chapel in Pepa Baru and to repair an old rice barn in Long Sule. This link between behavior and built form occurs for two reasons, according to Rapoport. First, built form is an embodiment of behavior patterns, including motivations, feelings, and desires. Second, once built, these forms affect behavior and lifestyles.⁴⁶ One example of this link is the shared internal porch on Dyak longhouses that encourages and supports community interaction. Powell also identifies a link between built form and behavior: "The vernacular house in Southeast Asia is often a reflection of social position and cultural patterns."⁴⁷

3. Nationalism. Closely tied to the notion of unity is the principle of nationalism, in which all of the diverse cultures of Indonesia unite under one government. While regional conflicts and loyalties remain, most Indonesians identify themselves with their nation and with their national language, Bahasa Indonesia.⁴⁸ At the level of the village, where most Indonesians still live, this process of nationalization is begun by integrating the individual into the village

community. An Indonesian aphorism that captures this belief is "The little world should integrate into the big world."⁴⁹ The layout of villages I visited reinforces this concept in that the dwellings are situated in such a way that community space is created and reinforced. At the national level, in the 1950s and 1960s, President Sukarno tried to reinforce the concept of nationalism through numerous architectural monuments meant to symbolize the new Indonesian identity. "The hallmark of Sukarno's architectural projects was progress, modernity and monumentality. Most of them were built in grand 'International Style' to manifest the emergence of a new progressive power -- the Republic of Indonesia."⁵⁰ Since then, in urban areas, countless projects, both public and private, have been built in the International Style. This is now seen by some as contributing to a loss of national identity rather than signifying a modern nation, and this may account for the renewed focus on traditional styles.

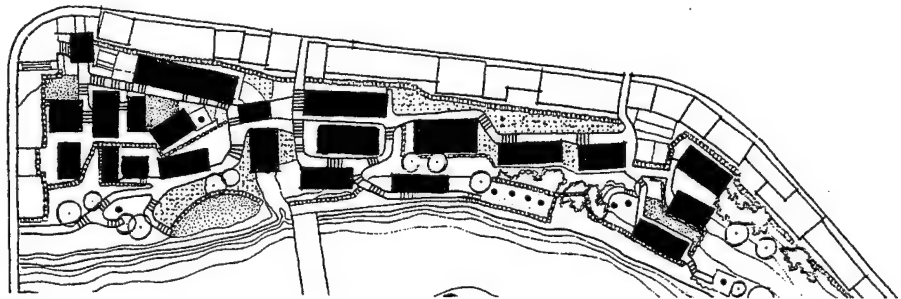
4. Representative government. The idea of a parliamentary democracy is foreign to Indonesian culture in that its focus is based on conflict where a small majority can oppress a minority opinion; this is at odds with the cultural concept of harmony as the natural state of relations among people.⁵¹ During the programming workshops I held on-site, the concept of representative government with its quest for harmony was demonstrated when, before making any decisions, the participants would deliberate for some time until a consensus was reached. No votes were taken. In most cases, the architectural patterns reflected this attitude of harmony. Houses in the villages I studied were of similar size and about the only hierarchy I noticed dealt with the placement of special buildings like the chief's house or religious buildings. In Long Sule, however, several houses were placed off of the main plaza; these were apparently for families with fewer financial resources. This may support Rapoport's findings that traditional societies display some differentiation in built form "...based on stratification in that society, whether by military prowess, wealth, or age."⁵² One example of stratification due to societal status is the large *omo sebua*, or chief's house, in the village of Bawomataluo in southern Nias. It is prominently located at the end of the main plaza and has a higher and more elaborate roof than surrounding dwellings (fig. 4). In its location and form, the building announces the chief's importance to visitors and residents alike. Even in Long Sule, one of the villages I studied, the village elder's house, while not much more elaborate than the neighboring homes, was positioned at the entrance to the village and at the end of the pedestrian street. From the porch, he could survey all the activity on the street. In Pepa Baru the stratification was less evident. The only example I noticed was that the church and pastor's home formed one end of the public plaza.

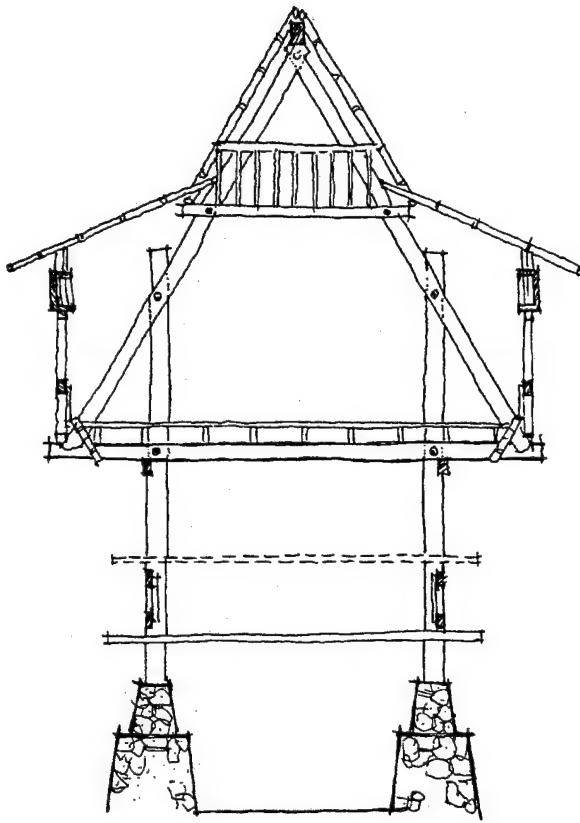
Fig. 4: The chief's house at a village in southern Nias is one of the few buildings that responds to societal stratification in its prominent location and dominant size (after Dawson and Gillow, 1994).



5. Social justice. The final principle articulated in *Pancasila* relates to a just and caring society in which the community strives to meet the needs of individuals -- especially those who may be less fortunate than most. This is closely related to the concept of *gotong royong*. In a clear sense, the impetus for this architectural project is based on the principle of social justice. The local leaders who invited our team to Samarinda saw a need among the city's youth for education, recreation, and a retreat away from the pressures of modern life. The youth center and camp is one way in which the religious community can meet some of the needs of the youth in the area. Another project that puts this concept into action is in Yogyakarta, winner of a 1992 Aga Khan Award for Architecture.⁵³ Since the 1950s, Kampung Kali Cho-de was a classic squatter settlement. The dwellings were made of cartons and plastic and the site was on a steep slope of compacted refuse that eroded frequently. In 1980, the social chief of the area and a priest began improvement efforts on the site. (fig. 5).

Fig. 5: The site plan of Kampung Kali Cho-de shows how the dwellings were wedged in between the river and a neighboring street (after Steel, 1992).





Rather than tear down the substandard settlement, the government supported the upgrading program and two local newspapers provided financial help for the improvement effort. The new homes are "A" frame shelters with bamboo joists and floors, and simple, concrete footings (fig. 6). With the help of local art students, the residents painted their own homes, using decorative patterns and colors. "Prior to its development, Kampung Kali Cho-de was a place of ill-repute that was inhabited by outcasts. Today, it is a peaceful and harmonious community, poor but honest, and proud of its achievement."⁵⁴

Fig. 6: The section through a typical house at Kampung Kali Cho-de demonstrates the clarity and simplicity of the structural system (after Steele, 1992).

UNDERSTANDING THE CULTURES OF THE PLACE: ADAT

A study of *Pancasila* offers insight into the cultural attitudes that are present, at least to some extent, in the minds and hearts of the people of Indonesia.

Pancasila represents what Rapoport calls a set of shared values that embody collective ideals and norms of the society at large.⁵⁵ He adds that "culture provides the rules, information, instructions, schemata or blueprints about how to behave, how to do things, [and even] how to build."⁵⁶ To be effective, an architect operating within such a culture should have an understanding of these shared values and rules. If *Pancasila* embodies some of these shared values, then *adat*, the unwritten law which regulates the behavior of individuals within a community,⁵⁷ expresses the rules by which societies operate. Soemardjan and Breazeale describe *adat* this way:

Centuries of physical and social isolation have sustained the evolution in village communities of a pervasive and culturally all-encompassing tradition which is widely known by the name *adat*. Each village community, and on a large scale each ethnic group, has its own *adat*, which differs from other communities and ethnic groups. Solving problems and making decisions the *adat* way entails the application of norms and values determined long ago....⁵⁸

Architectural implications. For architects, understanding the *adat* of the culture in which they are working may help them communicate and interact with the people in a more productive and a more positive manner. These rules or principles, that have evolved from traditions, help to bind the members of a group while encouraging them to work together in a more harmonious way; they help establish "...patterns that ensure a group's essential beliefs are manifested and sustained by the built environment...."⁵⁹ Without an adequate understanding of a group's *adat*, architects may fail both in terms of gaining the respect and commitment of the group, and in terms of translating those beliefs into built form. Translating beliefs into built form is a challenge that architects face everyday, but it is also a challenge that takes time to fulfill. The meru example, described earlier, is one illustration of architecture slowly and subtly transforming to accommodate changing religious beliefs. As Vitzthum writes, "Architectural form, because of its complexity, must evolve over time. As a society's building develops...it necessarily must be the product of the group's shared expectations, or their culture. If people share a system of expectations, then they probably also share some guiding principles or goals that are manifested in those expectations."⁶⁰ Articulating these goals is a time-consuming activity that must be part of the architectural intervention. The majority of the time I spent in Indonesia was focused on this activity. The goals that guide this intervention are described in chapter three of this thesis. These goals bridge the gap between the group's beliefs and the actual design. In a small way, the identification of these goals helps the project develop into a whole that is responsive to the local culture. Rapoport believes that it is just this focus on common goals or shared schemata that allows cultural landscapes to develop into recognizable wholes "in spite of the uncoordinated activity of many actors over long time periods."⁶¹ The obvious difference between this idea and my thesis is that I am attempting to shorten and formalize the process and actually coordinate the development of the project over time with the use of a master plan, building plans and the like. A true test of the success or failure of this intervention will be whether or not the result, though it may be ten or fifteen years in the future, adds up to a recognizable whole.

CULTURAL CHANGES

There are countless forces at work that are changing the structure of Indonesian cultures. For this thesis, two interrelated changes that are relevant are those affecting *adat* and those affecting children.

Changes affecting *adat*. While a culture's *adat* is based to a large degree on that society's tradition and history, these shared schemata have been and

are influenced by forces outside of the local culture. Waterson notes that, historically, "Both colonial Dutch and post-Independence administrations have had their effects on local traditions, particularly where concepts of modernization, and related ideas such as hygiene, have been brought into play."⁶² On the one hand, the Dutch colonial authorities were "supportive" of native cultures and actually worked to minimize changes brought about by modernization. By supporting the diversity of cultures, the Dutch effectively quelled the rise of Indonesian nationalism while, at the same time, they were able to maintain control over the colony and effectively silence collective demands for economic betterment among the local populations.⁶³ Eventually, and perhaps with the advent of their "Ethical Policy," the Dutch did lose control. In contrast to this forced primitivism, the political leaders of the new Republic of Indonesia began a drive towards modernization that continues to this day. Numerous five-year development plans spawned programs like rural electrification, national media networks, literacy campaigns, family planning efforts, and village cooperatives. According to Soemardjan and Breazeale, many of these programs had positive effects,⁶⁴ but, because they responded to nationalistic goals rather than local goals, some programs were seen by villagers I talked with as undermining local cultures and *adat*. This may be one reason why Indonesians are now experiencing a desire to recall or at least to acknowledge the value in traditional ways and local cultures. Waterson notes that "Traditions, particularly in a nation like Indonesia, with its enormous diversity of cultures, have to be thought of as multiple, whereas modernization is more likely to be conceived of as a unitary goal to which the whole nation aspires."⁶⁵ Soemardjan and Breazeale believe the forces of modernization are leading to a passing of traditional society where tradition-based structures of authority, a knowledge-base built largely on accumulated experience, and the *adat* system is "...now passing right in front of the eyes of tens of millions of Indonesian villagers."⁶⁶

In the villages I visited, there is an ongoing debate concerning the issues of tradition, development, and modernization. As Indonesia modernizes and communication technologies spread mass culture even into the remotest villages, those cultures are forced to adapt to these changes. Village leaders with whom I talked regarding these changes were concerned about the impacts of modernization, but they were excited about the benefits as well. These changes affect not only *adat* but the entire social structure of the local culture.

National leaders in Indonesia equate the process of change with the process of modernization, and the programs they develop in Jakarta have a profound impact on the traditional culture of most Indonesians.⁶⁷ From family planning

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programs to voluntary resettlement efforts, the changes do have an impact on daily life, which in turn impacts the architectural response. Through mass education, mass media, and a policy of nationalism, the diverse mix of cultures are gradually giving way to an Indonesian national culture.⁶⁸ Some local people express concern over these changes. For example, Teungku Yacob quotes an Indonesian saying:⁶⁹

<i>Jinoe,</i>	These days,
<i>Ureung hana male lee</i>	People no longer show any shame,
<i>Bungong hana mubee lee</i>	Flowers no longer give off any fragrance,
<i>Campli ihana keueng lee</i>	Chili peppers no longer impart any spiciness

Changes affecting children. Since this project is a youth center, it is appropriate to look at some of the cultural changes that are affecting the lives of youth who may be guests at the center. While this description of cultural changes affecting children is not all inclusive, it does present a picture of some of the key forces affecting children in Indonesia today. These forces can be broadly categorized into three areas: education, television, and transmigration.

Education. Officially, the national government places a high priority on access to education, but, despite this focus, less than 25% of school age children in Indonesia will graduate from secondary school.⁷⁰ Of the many factors that contribute to this poor record, four factors seem to stand out. First, there is a shortage of qualified teachers across the country.⁷¹ Second, in the rural areas, the quality of education is so poor that many graduates of secondary education cannot even read in the national language.⁷² Third, education is not free in Indonesia, and many families, especially in remote areas, cannot afford to send their children to school.⁷³ Fourth, the education that most children receive is not enough to prepare them for higher education or productive employment but it is enough to make them "spoiled for farming."⁷⁴ An unfortunate result of this educational problem is that many children, according to a Jakarta educator, "hang out in gangs. Crime goes up. Respect for elders goes down. Society begins to unravel."⁷⁵ Another side effect of this problem is that education, according to some, may be changing the attitudes of children for the worse. Soemardjan and Breazeale note that with increased education the young people are more confident in expressing their opinions and beliefs. This is clearly a positive development. However, this change has resulted in a shift in attitudes to where children are not as interested in helping their parents farm nor are they interested in respecting the traditional barriers that *adat* placed between children and adults.⁷⁶

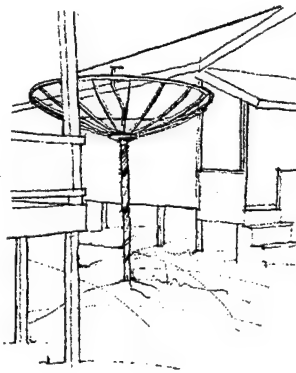


Fig. 7: Even in remote villages like Long Sule, satellite dishes are common and reflect the ever-increasing reach of mass media and national culture.

Television. Another force affecting children in Indonesia today is the growing popularity of television. On the positive side, because the programs are all broadcast in Bahasa Indonesia, children are motivated to learn the national language in addition to their own dialect. For this reason, "it is easy to appreciate the role of television in the nation-building process, as a mechanism that binds people together who belong to so many ethnic groups and speak so many different languages."⁷⁷ In the villages I visited, watching television is not an individual or family activity but a community event. Although the government provides each village with a satellite dish (fig. 7), the televisions must be bought privately. Hence, for economic reasons, many villages have just one television and the community gathers around it every night. I noticed that this community gathering, at least in Long Sule, was as much for socializing as it was for watching television. While the children were watching one program, the adults would be talking or working together. When the adults were watching, the children would be playing games or telling stories. While the parents I talked to approved of television because of its educational value, they were concerned that it was influencing the young people in a negative way as well.⁷⁸ For example, many children seem more interested in shows like *Black Magic* or *Ninjas* than they are in educational programs. In their survey of village residents, Soemardjan and Breazeale found that most respondents expressed satisfaction with programs devoted to religious or educational topics but they strongly objected to entertainment programs with alien cultural content.⁷⁹ Just as many other societies are grappling with the proliferation of television, Indonesians will have to struggle as well to find an acceptable balance between education and entertainment. For children especially, this proliferation means that they will be more aware of the world around them, the good and the bad.

Transmigration. With over 185 million people, Indonesia is one of the most populated nations in the world.⁸⁰ While many islands remain largely unpopulated, Java, Lombok, and Bali are so densely populated that the government has sponsored a voluntary transmigration scheme that has relocated over three million people from these islands to less populated islands such as Kalimantan, Sumatra, and Irian Jaya.⁸¹ This uprooting has its price. As Frampton notes, people can be deluded into thinking that "...this massive uprooting can take place without cultural loss....Traditional cultural communities are extremely delicate and when [they are] urbanize[d] it is often an act of violence."⁸² Equally disturbing are the environmental costs of such upheaval. The director of the Institute of Ecology at Padjadjaran University in Bandung, Dr. Otto Soemarwoto notes that "As population grows, upland forests are leveled for settlements. The rains tear away the denuded soil and wash it down to choke the flatlands. More

roads and houses are built. The soil becomes less permeable. Lowland water tables aren't replenished. Dry seasons become droughts; rainy seasons turn into floods"⁸³ (fig. 8).

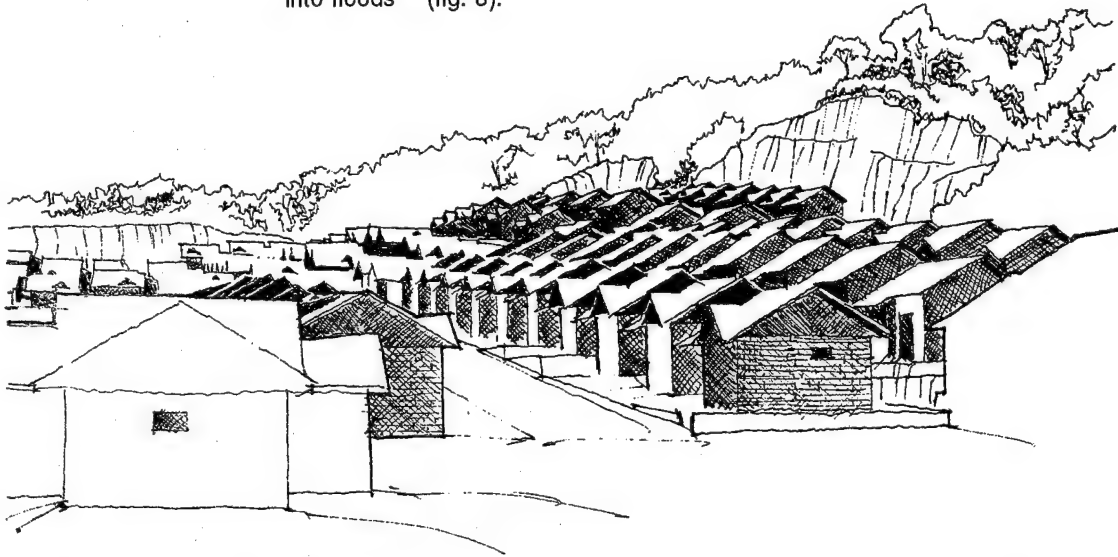


Fig. 8: A typical settlement due to transmigration in Kalimantan looks similar to this -- trees clear cut, slopes leveled, topsoil lost, and water quality degraded.

The effects of transmigration on families and children can be severe. Zich recounts the story of Pak Manto's move off of overcrowded Java.

[In 1985] they boarded a government C-130 Hercules airplane for Balikpapan, on the eastern shore of Kalimantan, Indonesia, Borneo. They then traveled by bus, truck, and riverboat 115 miles up the muddy Mahakam River to the scrub-jungle outpost of Rimba Ayu and the ... [home] the government had promised. Manto and Suminten [his wife] have survived a seven-month drought, a five-month-long jungle fire, an epidemic of Newcastle disease that killed all but two of their chickens, and a plague of rats that devoured their seed.⁸⁴

While Pak Manto's family survived the hardships and still live on Kalimantan, many transmigrants who have no experience farming, or who are homeless city dwellers are virtually forced to migrate, and it is these people who often return to their original homes.⁸⁵ Furthermore, many of these transmigrants come into conflict with the indigenous peoples of the islands they move to. In East Kalimantan, the conflicts have been between the native Dyak tribes, whose land rights are rarely respected, and transmigrants.⁸⁶ In all cases, the stresses placed on those involved, including many young people, are hard to imagine.

PARTICIPATION: ENHANCING CROSS-CULTURAL DIALOGUE

While much can be learned from the literature about various cultures, if that were the only source the conclusions drawn would be of limited value. For architects to better understand a culture, they must experience that culture first-hand and

lessons must be learned from those who have lived within that culture. Regarding architecture and culture, Helmy notes that in traditional societies there are three basic components that link built form and culture: 1) the generic intention behind creating built form; 2) the morphemic structure of traditional forms; and 3) the participatory mode of practice. In this third component, there is a model worth studying that can be used to enhance cross-cultural dialogue.⁸⁷ Historically, participation has been a part of the development of vernacular architecture. For instance, Stea and Turan believe that participation is one of the main elements that characterizes vernacular architecture. As such, it is an extension and deepening of involvement and it signifies interaction among people in the building process.⁸⁸ For architects working across cultures today, using a participatory approach to develop the program or design may be an effective method. Vitzthum states, "In building, as with other traditions, most progress is made when many people participate to match form to cultural need and when they act under unified goals and beliefs."⁸⁹ Helmy makes it clear that this method is of value today, "If we are to learn from these cultures we have to understand more deeply and comprehensively the needs of the whole person and to find ways to express them in terms of physical form. One way of doing that is to work close to people in a participatory mode."⁹⁰ The next chapter will explore what this means and how a participatory model can be developed for use across cultures.

There is a link between built form and culture that architects need to understand. Creating architecture is more than meeting program requirements, it also involves respecting the attitudes, beliefs, and practices of the people being served by the project. Culture not only manifests itself in the shared schemata that allow people to maintain their own identity,⁹¹ it also becomes evident in physical or material terms. Expressions of this material culture include music, art, drama, and architecture. To successfully link architecture to the culture of the place, the National Congress of the Indonesian Architects Association states that an Indonesian architecture should be anchored "... in the indigenous culture and should have a unique identity which reflects the Indonesian way of life and [the] national principles [of] Pancasila."⁹² This chapter has been a limited attempt to explore what it means to anchor architecture within such a cultural context.

CHAPTER TWO

PERSPECTIVES ON PARTICIPATION

As identified in chapter one, the participatory mode of practice is an excellent method to use when working across cultures. However, not all architects use such a process. During a discussion I had with Richard Keating, an American architect responsible for the design of several high-rise buildings in Southeast Asia, he told me that such a process is largely unworkable and can only lead to "design by committee." Why was he set against what others consider a valid method? What are the limitations to the method that he may have encountered? This chapter attempts to answer, in a general way, these and other questions about participation as a method. User participation in planning and design is one of many methods available for designers to use as we go about the business of making architecture. This chapter sets out to define what participatory planning means and to look into the method's history, its benefits, its limitations, and the themes that make it work. But one may ask, "Why choose this method?" Or, perhaps more importantly, "Why use design methods at all?"

NOTES ON METHODS

Methods are simply a means of organizing an intervention. They can be simple and set a broad framework for action, or, at the other end, they can be very detailed descriptions of every step in the entire intervention process. The danger in utilizing an overly detailed method is that rigid adherence to it can limit flexibility during the planning process. As Nabeel Hamdi points out in his book *Housing Without Houses*, "problems cannot be solved in a general way. They can only be solved according to locally specific circumstances with some general help."¹ The goal for any design method should be the effective facilitation of the entire process. Nevertheless, regardless of how good the method is, it may in the end produce poor results. Good results are produced through experience, intuition, and judgment and a design method should facilitate this good judgment.² Selecting a design method should be more than

an exercise in efficiency. The method chosen should grow out of the architect's moral position. In my case, I believe deeply in the concept of user participation, and I try to utilize this method when the circumstances allow for its application. This notion of tailoring the method to one's personal philosophy and to the situation at hand is important because one approach may not fit all situations. If, for example, an approach is overlaid on the situation rather than emerging from that situation, the efficacy of the method should be questioned.³

If the eventual goal of the process is project implementation, then the method chosen should facilitate that process. The resources at hand, the time available for study, the willingness of users to participate in the process, and the expertise of the design team all come into play during the selection of a method. In the case of planning projects in developing countries, Hamdi has noticed that a failure to implement the plan is not due to lack of skill or information on the part of the people involved but rather on the lack of "an adequate formwork for articulating and prioritizing problems, defining solutions, and building consensus and partnerships."⁴ For designers working in developing countries, this is a prescription for participatory planning that should not be ignored.

PARTICIPATION: SOME DEFINITIONS

First, it is valuable to look at a range of definitions that have been put forward on the topic of participation. For a survey of community designers, Comerio defined participatory design as a "process of involving a full spectrum of community members, in a meaningful way, in decisions about the form and management of their physical surroundings."⁵ In the book *Microplanning*, Goethert and Hamdi define community participation as a "process by which professionals, families, communities, groups, government officials, and others get together to work something out, preferably in a formal or informal partnership."⁶ There are subtle differences between these two definitions. Comerio writes about community design. Goethert and Hamdi write about microplanning. But both are advocates for user participation. Furthermore, Wulz breaks the concept of participation into seven different forms, ranging from the least amount of user involvement to the most.⁷ Because they apply equally well to planning and to design, his categories are worth reviewing. From least involvement to most they are:

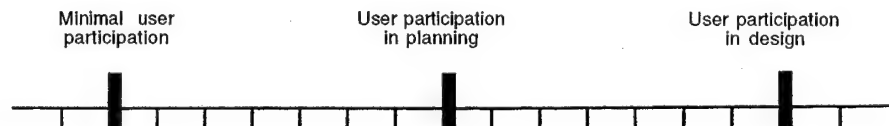
1. Representation: the most passive form of participation where the client's needs are represented by the knowledge of the architect not by the input of the client.
2. Questionary: a rational method based on scientific inquiry into finding objective knowledge, using surveys, questionnaires and the like, and subjecting these to rigid statistical analysis.

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3. Regionalism: while including some elements of the previous two categories, regionalism adds to the fabric a focus on the culture within a geographical area.
4. Dialogue: this occurs when there is unstructured conversation between user and designer which may or may not influence the final outcome.
5. Alternative: when users are given a range of alternatives to select from this can be considered a form of participation, especially when the choices emerge from the previous four categories.
6. Co-decision: this happens when decision-making is balanced between designer and users and requires that the latter be involved in decision-making from the outset.
7. Self-decision: in this mode, the designer's role is minimal and he or she may simply provide technical support to self-help or self-build operations.

This seven-point structure is flexible enough that it can be applied in the planning phase, where project goals and concepts are generated, and in the design phase, where solutions are created. In every project, designers place themselves, in effect, on a sliding scale of participation (fig. 9) that accommodates user participation at any level. Once located on the scale, the designer then chooses, or is forced by the client to choose, the degree of user participation in a fashion similar to what Wulz described. The scale of participation and the depth of participation are interwoven on every project.

Fig. 9: Scale of Participation. Once a project is located on the scale, the degree of participation must be defined and may fall within one of Wulz's seven categories.



In most cases, I believe that the majority of designers place themselves on the left side of the scale of participation where there is minimal user involvement, and they then work within the first five categories described above. This may occur when a client already has a program developed and just wants the architect to carry it out. Or it may occur when the designer is only interested in the raw data required to make a program, and, consequently perfunctory interviews will be conducted. These approaches are not what I would consider very participatory. On the other end are practitioners like Christopher Alexander who, in his Mexicali project, had the users plan, design, and build their own homes.⁸

For this thesis, I am interested in looking at issues related to projects placed near the center of the scale of participation. While my primary focus will be on user participation in planning, there will be some migration slightly to the right because I see some overlap between concept planning and schematic design. In terms of degree of involvement, I am most interested in the co-decision category where planning decisions are made in an atmosphere of collaboration and cooperation.

A SHORT HISTORY OF USER PARTICIPATION

The idea of including users in the planning process is not new. There are two views regarding the beginning of this method that are worth noting. The first view sees the concept of user involvement coming out of the work of general systems theorists in the 1960s, who proposed the use of a participatory and democratic process to improve the physical environment.⁹ This bias towards improving efficiency in the process also complemented the prevalent attitude of that decade which focused on equality and civil rights. The argument in favor of this pluralist position stressed the issues of justice and fairness in regards to giving non-professionals an equal right in the planning of the physical environment.¹⁰ The other view traces the beginnings of the method back to the 1960s as well but attributes the change not to an interest in systems theory but to the debate between positivist and postmodern theory. Where the former theory focused on objective knowledge and the ability of science to find the right answers, the latter focused on science's inability to definitively solve problems.¹¹ In their book *Placemaking*, Schneekloth and Shibley argue that "From the standpoint of the postmodern theory of knowledge, we can no longer assume that professors and professionals 'know' and others 'don't know' in the practice of placemaking."¹² Comerio adds that "the concept of public involvement in design, what we might call anti-positivist planning, emerged in the '60s and '70s as it became clear that professionals were not doing a good job at 'making it all better'."¹³ Since professionals no longer had an exclusive right to the knowledge required to make places, as demonstrated by their failings, it made sense to open up the process to others who might have knowledge to add to the process. This "condition of relativity" has helped separate the growth of knowledge and the development of places "from the private realm and relocates them in a public and relational practice, a dialogue."¹⁴

If the 1960's gave birth to the idea of user participation, then the next decade was a time when the concept grew out of its vocal advocacy role and was refined to "fit with the reformist, self-help mentality of the numerous grassroots movements that grew up in the '70s."¹⁵ Two architects influential in the

movement during this period were John Turner and John Habraken. For both of them, user participation was essential. In *Supports*, Habraken emphatically states that the "return of consultation and involvement on the part of the users, in the most literal sense, must be accepted."¹⁶ While Turner focused on organizational development rather than design, Habraken thought that good design played a vital role in the process. The work of Horst Rittel and Melvin Webber complemented Habraken and Turner in that they, too, believed that participation of all concerned as a way to best solve design problems.¹⁷

The 1980s and 1990s are somewhat of a maturing period for the concept of user participation. *Problem Seeking*, first published in 1969, was revised and updated for the third time in 1987. This pioneering work by William Peña and Bill Caudill of CRSS describes a programming method that has at its heart the concept of user involvement on the programming team.¹⁸ Additionally, architects and planners like Hamdi and Reinhard Goethart have tailored the concepts to their particular situations. Rather than making broad claims as to the effectiveness of participation, these designers are using the method incrementally and on a case-by-case basis to improve the conditions of small-scale interventions. In 1984, Comerio noted that "participation as a panacea for reform in the public realm is being questioned and so is any notion of sweeping social reform as community design has become more practical and less idealistic."¹⁹ Today, the idea of participation has been moderated while at the same time being accepted by mainstream architects as a legitimate way of conducting certain design exercises.²⁰

PARTICIPATION: PROS AND CONS

As designers utilize participation and collaboration during the design process, as most do to some extent, they are rightly weighing the benefits against the limitations and the potential risks of this approach.

Limitations of participation. Given its thirty-plus year history, this design method does have a record to evaluate and in some cases the results are not all positive. The criticisms of user involvement fall into three broad categories: increased time commitments, inferior aesthetic results, and flawed methodologies. First of all, many have found the process to be slow. The reasoning is straightforward in that the more people involved in decision-making the longer making decisions will take -- even if it is only because everyone must be heard. Moreover, some believe that users in general don't know what they need, and even when they do they are not properly equipped to get it.²¹ Secondly, some practitioners believe that the resulting built form is inferior to

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what a good architect could have produced. To these practitioners the architecture "is banal when it conforms to familiar models and chaotic when it expresses the choices of participants."²² In advocating user participation in design, John Habrakan has frequently been criticized. He responds to these critiques best in a paper given in 1985:

In school we are told to find our own voices and to do our own thing. In architectural criticism the worst you can say of an architect's work is not that he is inept or has bad judgment but that he did what someone else already did before. Indeed, in the course of time, it seems, the idea that architecture is the special within the ordinary has been developed in the idea that originality is the prerequisite of good architecture. The idea of the special has evolved into the cult of the new and unheard of.²³

Since peer acceptance is a natural desire for many designers, the possibility that one's work may be rejected because it lacks originality is a legitimate concern for those contemplating extensive user involvement. A related criticism centers around the fact that, in many instances, the users have not had a noticeable effect on the final form, and in fact the designer's influence is obvious.²⁴ The broadest category of liabilities, and perhaps most poignant, deal with concerns over flawed methodologies. Hamdi points out that an obvious example occurs when practitioners fabricate user surveys and questionnaires to justify design goals rather than to generate them.²⁵ Also, Peña notes that designers who begin design before the problem is defined can only generate partial or premature solutions.²⁶ This is especially relevant as the time it takes to define the problem or develop the program is extended due to the increased number of people involved in decision-making. Another methodological limitation is that involving the community in decision-making can raise expectations unrealistically.²⁷ Additionally, without the proper representation of users and without an open political process, the results of any participatory approach could be flawed. "Participatory programs advocate a democratic process for reaching decisions. If they are conducted in a non-democratic political climate, they will be viewed with much suspicion by local participants...."²⁸ Designers must recognize that when people or their ideas are included or excluded from the process it is a "noninnocent decision that has significant political and ethical ramifications."²⁹ Another concern some have is that the quest for user involvement can result in tokenism. Hamdi defines this as "plans devised by a dominant group established to seek the opinion of others, who consult these others on issues that are preselected and may have little or no relevance to those invited to comment."³⁰

Benefits of participation. Since involving the users in the planning and design of a project can potentially create these liabilities, why would designers even be interested in contemplating the idea? I believe that the answer to this question lies in the realization that there are overriding practical and human development benefits to the method. From a practical standpoint, there are a number of benefits. For instance, Hamdi notes that participatory programs can provide for the expression of needs, by those who actually experience those needs, in a format well suited to the collection, analysis, and interpretation of those needs.³¹ Schneekloth and Shibley write that there is a clear benefit to the open exchange of ideas in a public manner rather than in the privacy of each individual, and that this results in an opportunity to create new bodies of knowledge based on shared insights and open dialogue.³² Also, Comerio found that citizen participation is valuable in that it maintains and encourages the expression and integration of a diverse set of values in most societies.³³ Peña reports that, participatory program creation can lead to an environment in which creativity is not inhibited because the limits of the problem are clearly established, and it is when the limits are known that creativity thrives.³⁴

From a human development standpoint there are some clear benefits as well. For example, Hatch believes that "participation is the arena in which people can relearn environmental competence, experience the pleasures of collective work and develop the ability to question the nature of the manmade world."³⁵ Moreover, Hackney asserts that the process helps build a team spirit and a sense of belonging while tapping and allowing enthusiasm to prosper.³⁶ In their work, Schneekloth and Shibley have found that "those of us who engage professionally in placemaking with and next to others are involved in the practice of creating beloved places through the maintenance and renewal of relationships among all participants and their world."³⁷ Another important benefit is that participation can help develop local leaders who provide for program continuity when the "experts" leave. According to Hamdi, this process of promoting community leadership, known as institutional development, should be one of the primary purposes of community participation.³⁸ Peña summarizes the clear benefits when he states that "Good buildings don't just happen. They are planned to look good and perform well, and come about when good architects and good clients join in thoughtful, cooperative effort."³⁹

Risks of participation. In addition to these liabilities and benefits, there are some risks that must be considered. While inherently neither positive nor negative, they can have an impact on the final outcome. For example, collaboration with users opens up the architect to a situation where some degree

of control will be lost and this may result in the architect feeling more vulnerable. These feelings may be hard to overcome, especially if such exposure makes the architect appear less valuable in his or her own eyes or in the eyes of professional colleagues. This loss of control "is the antithesis of conventional professional aspirations and entails real professional risk."⁴⁰ Another risk articulated by Peña concerns the potential for information overload. In participatory program development the quantity of information received from the users can be overwhelming.⁴¹ It is the role of the designer to sift through this data to find what is most useful at every given step. When this sifting occurs, however, designers open themselves up to charges of bias if they use this act as an avenue to unduly influence the outcome of the process. Similarly, what can result from opening up the process to dialogue and interchange with users is a divergent body of knowledge which can inhibit actions. When knowledge is relative and no one has the right solution, decision-making can be difficult. So what is needed "in this new relative world are ways of assessing which kinds of knowledge contribute to our activity and which do not."⁴²

PRINCIPLES OF PARTICIPATION

This new way of assessing knowledge requires the effective application of the principles guiding user participation. In my research, I have found that there are six principles worth studying. They are necessarily complementary and each principle can be applied to varying degrees.

1. User involvement. Perhaps because he has found that design projects clearly benefit from intensive user participation, Peña states, "the user must be a contributing member of the project team."⁴³ In most projects the user is on the team in one form or another, but real involvement is more than just a few brief interviews. Again, this relates to the scale of participation. It is critical that there be a high level of cooperation among the design team and the other actors in the process, from the project initiator to the end user. A project's success depends on the involvement and cooperation among these actors as a prelude to design.⁴⁴ As Schneekloth and Shibley assert, because actual people inhabit and are affected by the places designers create, the thoughtful practice includes these same people as an integral part of the design process.⁴⁵ The act of selecting these actual people is not an easy or apolitical task though. By deciding on whom to include and exclude in the participatory sessions, the designer is already injecting some form of bias into the process and as a result is limiting in some way the knowledge that can be gleaned from such a process.⁴⁶ When deciding on an intervention and who will be involved in that intervention, the designer must be aware of these implications.

It is important to note that there are benefits to user involvement beyond the beyond only the technical assistance the users may provide in terms of program formulation and strategic planning. By bringing users into the process, designers are implicitly recognizing the fact that, according to Alexander, "Every person is part of a society and requires bonds of association with other people."⁴⁷ Most people have an inborn need for being part of a productive community, and the participatory approach can be a small step towards meeting that psychological need. Hatch adds to this by asserting that, while architects are accustomed to dealing with quantifiable needs, there are more fundamental needs, which have at their foundation, "...drives for community, competence, and self-actualization."⁴⁸ It is through the act of involvement and soliciting input that designers demonstrate their commitment to developing relationships among people that can satisfy some of these needs. When designers value and use the input of the local people, this affirms that these people are appreciated and "that their lives and their place have meaning...."⁴⁹

2. User decision making. Another key principle is the reliance on decision making by the user rather than the designer. The aim is to enable the users to make decisions early and often. This process of enabling gives responsibility and authority for decision making to the users as much as possible. Hence, it is imperative that the team create a political climate where the users in fact have such powers and where the people with those powers are involved in the process. Turner makes the case for this principle well:

If...a genuine architecture is rooted in everyday life and the vernacular, if culture is indeed a process of refinement from the grass roots, then the new global civilization must return control over personal and local life to people in their own homes and neighborhoods....⁵⁰

Alexander also stresses the importance of client decision-making by critiquing the prevalent system. He believes the system is fundamentally flawed when "Decisions are made remote from the consequences of the decisions."⁵¹ In much of his work he has tried to empower the users to make as many decisions as possible, regarding not only the program but also the actual design. One clear practical benefit of this type of empowerment, according to Peña, is that when the client makes decisions during the planning stage of a project it simplifies the design problem by eliminating the need for extensive design alternatives required to meet unclear requirements.⁵²

3. Group focus. Participatory processes require collaboration, and this requires a group focus rather than an individual focus. This orientation allows for the greatest representation of interest, which in turn benefits the entire planning effort.⁵³ Successful participatory efforts, according to Hamdi, occur when people realize that their concerns are better served in a shared partnership rather than in an atmosphere of isolation.⁵⁴ The planning and design process is best done collectively because it tends to be more effective when people impacted by social and environmental change are involved in the process of generating knowledge about that change.⁵⁵ To motivate these groups to do their best, Hamdi asserts that all participants need to share the risks, responsibilities, and profits of their collective actions.⁵⁶ The group focus is critical, but to be effective the intervention must be organized in an atmosphere supportive of the group's working style.

4. Workshop atmosphere. Many of the practitioners utilizing groups and participation structure their interventions in a workshop atmosphere. Sanoff defines workshops as "planned events where participants learn from each other as they explore issues."⁵⁷ Working together in an atmosphere supportive of the group's goals can have many benefits. For instance, this form of small group method can facilitate dialogue among many people and encourage the airing of previously unspoken ideas.⁵⁸ Also, the development of local leaders is promoted through participation in the workshop setting.⁵⁹ Furthermore, workshops provide a fitting environment to achieve a high degree of interaction among participants who share a common goal.⁶⁰ Because of the interactive format of a workshop, Hamdi believes that "each individual is encouraged to contribute and each individual view is valued."⁶¹ The selection of a format for the workshop varies according to the goals of the group. In one case, the event might be conducted in one room where everyone shares ideas. In another case, the group might be subdivided and asked to comment on particular issues and share findings with the larger group. In most cases, though, the workshop allows for discussion and recording of that discussion, and restating the findings to the entire group is done where necessary. Schneekloth and Shibley add that workshops should be "public, oral, participatory, and celebratory."⁶² In their work, they found that workshops were "educational in the fullest sense of the word, akin to the practice of 'craft' where the mind, heart and hands are used together."⁶³ This educational nature of workshops is stressed by Sanoff as well. He argues that this type of education requires personal commitment to developing and testing ideas in a focused atmosphere where participants are required to reconcile their differences in pursuit of a common goal.⁶⁴ Workshops allow this reconciliation to happen.

5. On-site. A fundamental principle closely tied to the concept of having groups collaborate in a workshop atmosphere is that the workshops themselves must be based on-site, in the local area, not in the practitioner's office. Some literature calls such intensive on-site work sessions *charrettes*. The term evolved from the Beaux Arts tradition when architectural students' work was completed by them, near the deadline, on the small, wheeled cart that the instructors used to collect the projects -- they were "on charrette."⁶⁵ Naturally, this required an intense amount of effort to pull off. Today, many advantages to charrettes have been identified: they eliminate distractions by concentrating effort on the project at hand; they minimize delays because the on-site nature brings people who need to make decisions together when decisions need to be made; and they provide a forum for increased collaboration between the user and the design team.⁶⁶ Peña calls these on-site workshops *squatter sessions*:

The squatters technique was developed to solve a communication problem with clients at a long distance from the office. Setting up an 'office,' practically in view of the site and on the client's premise, is certainly a good solution. The users and the owners are easily available for interaction and decision making. Working efficiency is achieved by isolating the team members from the office telephone and other projects. In this way they can concentrate on the task at hand.⁶⁷

Hamdi also advocates an on-site approach and describes two advantages that result from basing workshops in the local environment. "(1) it reinforces the bias towards community; and (2) it allows the involvement by other community members normally excluded, i.e. women and children."⁶⁸ Including marginalized members is a very sensitive political and social proposition and must be handled with extreme care, because what may be appropriate in one culture may not be appropriate in another culture. As I presented in chapter one, understanding cultural variations is an important first step in achieving a needed sensitivity. In chapter three, I will document how I approached this subject. For instance, I will address questions that look at how this is done, and when such inclusion is appropriate.

6. Improvisational nature. Predicting the outcome of events is difficult when just one person has control over a process; but when a diverse group of people are working together, predicting the outcome can be impossible. Hence, spontaneity and flexibility are critical in participatory planning and design. Every intervention is different and requires different approaches. Hamdi believes improvisations are a critical means of devising solutions to problems that may not surface until well into the process; and when they do surface such problems

may change and reappear in a random fashion.⁶⁹ Deciding who participates, who has control, and what the procedures will be are issues that can only be decided upon one at a time.⁷⁰

THE ROLE OF THE PROFESSIONAL

Given all of these requirements, involving users in the planning process may appear to leave little room for the professional. This, however, is far from true. The process demands the careful and attentive involvement of professionals at every step. Rather than dominating the process with their knowledge, professionals should be skilled at extracting the particular knowledge of the participants. Moreover, because designers intervene in the lives of others, they should be able to work collaboratively; which means that rather than simply facilitating dialogue, designers bring to the table their knowledge, attitudes and experiences.⁷¹

Facilitating communication. The professional must ensure that the communication process is accessible to all the participants and is focused on the relevant issues. Friedman asserts that "good communication between user and designer is the key to successful architectural results."⁷² If the communication process breaks down, by default the designers will introduce error into their plans and, in the end, the user will suffer the consequences of these errors.⁷³ Schneekloth and Shibley consider the first task of the professional to be the creation of an open environment for communication and they believe this can occur through the development of a trusting, caring relationship with the users.⁷⁴ This environment is termed a *dialogic space* and it is the context "in which hopes, fears, ideas, and frustrations about a place and the people who live there are discussed."⁷⁵ It is through open communication in which the participants join together in collaborative dialogue that courses of action begin to unfold. This cooperative atmosphere cannot occur when there are participants who compete to make every decision and play every role.⁷⁶ All parties must be willing to listen to one another and be open to new ways of thinking and working if the dialogue is to be successful.

Documentation. Closely related to the aspect of communication is the need for effective documentation and graphic analysis. Documenting the process and the decisions made throughout that process is one of the prime responsibilities of the professional. Effective documentation is important for two reasons: (1) it helps facilitate understanding during the process; and (2) it helps facilitate interpretation after the process.

According to Peña, graphic analysis is required during the process if users and designers are expected "to understand the magnitude of numbers and the implications of ideas."⁷⁷ He believes the professional should collect, organize, and display information for discussion, review and approval.⁷⁸ Careful and consistent documentation during the process is essential because it helps sharpen the thinking of the entire team.⁷⁹ There are a number of strategies designers can take to structure this documentation; these range from simple note taking to elaborate graphic logs. Peña offers some of the best suggestions for process documentation. For example, summarizing the total area required by using scaled blocks representing each activity is a good approach to use to help the group visualize the number and size of spaces more easily. He calls these 'brown sheet area summaries' since the spaces are drawn to scale on large sheets of butcher paper or newsprint.⁸⁰ Another example is the analysis card technique which is used to record data intended to be displayed, discussed, and decided upon.⁸¹ The cards are conveniently sized for reproduction and are used to represent one idea, goal, or concept. Together, these two examples are excellent ways to promote a thorough understanding of the magnitude and implication of ideas in a manner supportive of sound decision making.⁸²

Documentation is also important as an aid to interpretation at the end of and after the planning phase. For the design team members, a well-documented process will help them make the countless minor decisions that are required throughout a project's design but that were not relevant during the planning process. For instance, designers who can refer to the client's goals quickly and easily will be able to keep those goals uppermost in their minds. Also, a well-documented process provides a corporate memory for both the design team and the user that can be used as a check during project reviews. Similarly, Hamdi writes that documentation allows "...awareness of the steps taken in reaching a conclusion. This allows clear backtracking and modification of a decision if later considerations identify new conditions."⁸³ At the end of the planning stage, a well-documented problem statement that summarizes the key issues in clear terms can provide a sense of closure to the planning phase on the one hand and serve as premises for design on the other.⁸⁴ The format for this statement may vary but Peña believes that there are some basics to consider:

...it is good practice to acknowledge a general direction for design. While each condition must be precisely stated, the direction (what should be done) should be ambiguous enough to avoid the feeling of being locked into one solution. This direction should be made in terms of performance, so as not to close the door to alternative solutions nor to different expressions in architectural form.⁸⁵

Areas to study. This explanation of how and why communication and documentation are important allows attention now to be focused on what types of information should be studied by the professional involved in a participatory process. Two primary areas of study present themselves to the practitioner. The first is the built environment and the second is the human environment. The former deals with those elements of the built environment that are observable and measurable and that may influence the project's direction. These elements provide a structure and an anchor for the new intervention and include things like the function of physical pieces, the pattern and hierarchy of streets or the rhythm of fenestration, and the relationships and linkages between these and other physical elements.⁸⁶ The latter deals with the more abstract goals and concepts associated with human behavior and need. Among other things, Peña directs programmers to search for goals - which are the ends - and concepts - which are the means to achieve those goals - in four broad areas: function, form, economy, and time.⁸⁷ Through this comprehensive analysis of both the existing context in physical terms and the more abstract context in human terms, the practitioner can be confident that the correct range of data is being collected.

Studying these two broad areas can be done in any number of ways in order to be effective. Some common themes that have emerged in participatory processes are the following:

- Knowledge of everyday experiences is gained through careful observation of the people being served and through "much talking and listening in workshops, meetings, and interviews that carefully record participant perceptions and values."⁸⁸
- Success relies primarily on both a careful diagnosis and a clear understanding of the systems, habits, conditions, and relationships of the context.⁸⁹
- Interviews and dialogue with the users are effective techniques for discovering project goals and overall concepts.^{90, 91}
- The professional is responsible for critically testing information for integrity, usefulness, and relevance.⁹² By engaging in this critical review of information, either through direct questioning about the history, purpose, and views of the participants, or by challenging assumptions embedded within the project's political or social context, the professional is revealing socially constructed worldviews that may impact the outcome.⁹³

Building a program. The result of all of this activity should be a clear program that accurately states the scope of the problem. This program will become the roadmap for design, and as such, should be as clear as possible. The responsibility for creating this program belongs to the professional, but it is only done through productive collaboration with the user. Hamdi outlines five steps that inform the building of a program⁹⁴:

- (1) problem identification: documenting and analyzing the problem
- (2) creation of general strategies: preparing and analyzing alternative approaches
- (3) program agreement: definition of the actions to take and evaluation of them against project priorities
- (4) implementation planning: strategies for getting the job done
- (5) evaluation: looking at both the process and the product

Although this may appear to be a logical sequence, and it reflects the approaches other practitioners involved in participatory planning take, it is important to note that these tasks are not as discrete or sequential as they might at first appear to be. The professional must realize that they occur simultaneously and iteratively throughout the intervention.⁹⁵ In the end, professionals have a key role to play in any participatory process. They facilitate open communication, ensure that documentation supports decision making during and after the planning sessions, focus attention on key areas for study and evaluation, and they develop the map or program which the design team can later follow. Beyond these practical issues, however, there is arguably one more important role that the professionals play. Namely, by "investing their lives in motivating others to achieve what may outwardly appear a daunting task ... the seemingly unobtainable becomes possible."⁹⁶

TRANSFORMATIONAL EFFECTS OF PARTICIPATION

Participatory methods are far from conciliatory methods. Rather, inherent in the process is a subtle yet vital transformation of thought that occurs. Users and designers usually start with preconceptions, untested ideas, and familiar thought patterns. In the act of developing a common vision, these initial notions are transformed through the development of a collective knowledge about the people and the place. Ideally, this new knowledge grows in a synergistic way and is recognized by the participants as a positive development. Implied in the definition of partnership is the fundamental concept that participants share in the action of others and are involved with others in creating new options, negotiating priorities, and establishing directions.⁹⁷

Implications for the users. The potential for this screening effect to occur must be understood at the outset by the users. If this potential is not articulated, appropriate results, if they differ from initial ideas, may surprise those who resist change who then may work to undermine the outcome. According to Hatch, "Each project begins with people as they are and moves them toward a better understanding of themselves and their abilities."⁹⁸ Because each step in the process hones the areas of concern into more precise and more relevant pieces of information, the users must be open to engaging in this filtering process.

Implications for the designers. Designers have a valuable role to play in this filtering process. In effect, they become the screen in the sieve responsible for sifting out the unwanted bits of data. Schneekloth and Shibley believe that appreciating and working within a context does not suggest an uncritical stance; rather, designing is inherently about change, modification, and preservation.⁹⁹ Peña adds that it is the architect who is educated to establish a sequence or hierarchy based on order of importance and, consequently, it is the architect's role to abstract or distill the project to its essential components based on this hierarchy.¹⁰⁰ To order information and discard that which is irrelevant requires sensitivity and wisdom and should be done with the greatest care.¹⁰¹ Hamdi claims it is the designers role "to judge what is transferable from site to site, place to place, and even culture to culture."¹⁰² In situations where the designer is working across cultures, the danger in transferring incorrect knowledge is severe. Hamdi recounts the story of a standard 60 foot wide street imported from England and overlaid on the fabric of a neighborhood road in Sri Lanka. The resulting increase in privacy and light from what was previously a narrow road pleased the residents but disturbed many on the design team because it epitomized the "candid and colonizing way in which theories ... are transferred across cultural boundaries with little or no thought to cultural differences."¹⁰³

POLITICAL RAMIFICATIONS

This story serves as a reminder that there are political, social, and economic implications to every intervention. According to Comerio, participatory processes are fraught with inequity and as such "political and economic empowerment is essential to make genuine participation a reality for many communities."¹⁰⁴ Schneekloth and Shibley reinforce this belief by adding that "Ethical action also requires knowing who has no access to power or influence but will be affected by an action nonetheless. This will only occur if [designers] empower formerly unheard and subjugated knowledge in framing an intervention."¹⁰⁵ These two writers further warn that the task of selecting the

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issues to study and the people to participate in that study is a political act that can be used to empower people or silence opposition.¹⁰⁶ Without question this is the case. But, dwelling on such limitations can impede forward movement on the project. By subtly working to include the appropriate players, the architect can have a role in diffusing the politicization of the process. The political dimension is especially critical when dealing with cross-cultural design situations, as is the case for this thesis. Questions of control, leadership, empowerment, and access must be answered. Understanding the local culture is central to working through such issues. And applying this understanding is difficult but vital.

PARTICIPATION: A MODEL WORTH USING

To be used effectively, the participatory model requires a rethinking of the designer's role. No longer is the goal the fulfilling of an individual's ego but rather it becomes a fulfilling of a community's dreams. The role for the architect goes beyond mere design and enters into the realm of community building, facilitating, and leading. As Helmy notes, the participatory model "...is directly responsible for creating forms that are responsive to the needs, potentials, and limitations of a given community."¹⁰⁷ However, the model is not a panacea. There are limitations. The sensitive practitioner understands these issues, acknowledges their power, and works through them in a manner supportive of the dreams and goals of the people who will be benefiting from the intervention. This is the challenge for designers involved in participatory planning today.

CHAPTER THREE

PUTTING THEORY INTO PRACTICE

I met Heber Agan for the first time on the night of our team's arrival to Balikpapan on January 6, 1996. He has a very relaxed personality and he always seemed to have a reassuring smile on his face. After 16 hours in an airplane, his presence offered comfort and reassurance to a weary traveler. Although he is 42 years old, he looks closer in age to the young adults he works with than a man over 40. That night, we traveled by small van to the city of Samarinda, where Heber lives and where the site for the youth center is located. During the 1.5 hour trip, despite the narrow, winding roads and the noises of other vehicles that appeared to pass a bit too close, Heber started to share with us his dream.

LISTENING TO THE DREAM

Heber grew up as a "pastor's kid" in the village of Kampung Barong in East Kalimantan's interior. His father led the village's Christian church for many years and because of his influence, Heber decided he wanted to be a minister as well. So he went to a Bible college and, following his studies, returned to his home village where he served as an associate pastor for six years. While there, he met his wife, Yohanna, who was also a "pastor's kid," but she was from Malaysia. Together, Yohanna and Heber now have five children -- one girl and four boys. Heber's life direction shifted during his time back at his home village when he was 34 years old. He tells the story best:

I was attacked by two deadly sicknesses at Kampung Barong, Leukemia and Hepatitis B. I was nursed in a hospital for nine months but the doctor gave up hope and sent me home. On the way home, after I was sent back to Indonesia [the hospital was in Malaysia], a miracle happened in my body and I was completely healed. That was seven years ago. I felt God had a plan for my life and he gave me a chance to live so I became an evangelist in Samarinda to the street kids and began looking for opportunities to get God's message to them.¹

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So rather than following in his father's footsteps as a minister of a congregation, Heber's focus shifted to youth work. Now Heber works for the Gospel Tabernacle Church of Indonesia. This small denomination consists of 55 area churches that are within a three-hour drive of the project site. The street kids he talks about are young people who gather in the urban center of Samarinda and who really have no hope or purpose in life other than day-to-day survival. Some of these kids are from families who have moved to the city from remote villages in search of employment. Others are from families who have moved to East Kalimantan from overcrowded islands such as Java and Lombok as part of the government's transmigration program. Still others are without families and must beg to survive from day to day. Believing God spared his life, rather than becoming a pastor of a church, Heber feels God called him to minister to these needy children in any way possible. The idea for the youth center emerged out of his service to these children. Heber explains:

One day, I went to camp at the site with some of the street kids and with kids from local churches and we talked about many things. The camp site did not belong to us [Gospel Tabernacle Church] that day though. Then one day I met Gordon Swenson [a local missionary who works with the church] and I said to Gordon, "Gordon, this is a nice place for kids to meet. Why not buy this place?" Gordon just kept quiet but I know that I impressed him. Then one day he said to me, "Yes, why not buy it!" And then we started looking for money to purchase the land and by the Lord's grace and the Lord's blessing finally we bought it, so the land belongs to our church now.²

Gordon Swenson, whom Heber mentioned, is another person instrumental in the development of this youth center. Gordon is a missionary with the Christian and Missionary Alliance, an international organization that supports and nurtures the leadership of churches in developing countries. Gordon and his wife Pat have been in Indonesia for over twenty years and during most of that time they have worked with the Gospel Tabernacle Church. Gordon explains his version of the dream:

In 1982 the church noticed that it was not reaching local youth so the next year we worked on youth ministries. We developed a youth college in East Kalimantan and in 1989 we went to the site for a youth retreat. Then in 1991, while camped there, Heber said to me, "Gordon, we should buy this land for a camp." So we met with leaders of the church to talk about it and we decided that buying the land was a good idea. We now have *hok milik* which is the highest land ownership deed available and with this we can build on the land.³

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Gordon wants the site to serve young people in two ways. First, he would like it to support more formal activities as a youth center. Such activities would serve up to 40 children in permanent housing and up to 160 children in tent structures. These activities would be large, single-purpose events that would occupy all the facilities. Second, he wants the site to function as a counselor-centered camp where trained counselors such as Heber would work closely with small groups of youth in a wide range of activities from hiking and singing to Bible study and worship. Numerous "camps" would occur simultaneously and the youth would stay in tent clusters, configured to allow for groups of 30 to 40 each. Each group would access and share the center's facilities as needed. He arrived at these numbers based on his experience with past camps and with the number of counselors he anticipates will be available to work at the youth center.

I was also fortunate enough to have a conversation with a young lady who may eventually benefit from the youth center. I think her vision is worth knowing because it complements both Heber's and Gordon's perceptions. Her name is Florence Immanuela and she is from the island of Java. Florence says:

Sometimes, as a teenager in Indonesia, we get a lot of problems (sic) with education from our schools in areas like math and science. I think there is a possibility in a youth center to have special services to help with education and this would be good. I think also a youth center is a place to share experiences, to talk about problems faced by Christian teenagers in Indonesia. It is also a place to gain new skills and education. For example, many Indonesian teens make money for their families by selling traditional home-made handicrafts and in a youth center they may learn these skills, too.⁴

Heber, Gordon, and even Florence, dream of a youth center that can reach out to the area's young people in a loving and caring way. But these dreams needed to be brought into focus so that actual design could begin.

BRINGING THE DREAM INTO FOCUS

This was really the dream of Heber and Gordon. But while motivated by the power and clarity of their dream, they could not see it achieved alone. Fortunately, before I arrived, they recognized this and established a political structure to implement their dream. Heber's home church denomination, the Gospel Tabernacle Church of Indonesia, created a Board of Directors to oversee the youth center and camp. This Board, known in Bahasa Indonesia as the *Yayasan*, consists of fourteen members from some of the denomination's local churches. As a Youth Evangelist for the denomination, Heber is a *Yayasan*

member. Prior to my arrival, the *Yayasan's* input had been minimal. Both Gordon and Heber expressed a desire to integrate the *Yayasan* more fully into the planning of the youth center. In order to bring these leaders into the process, it was essential that we begin by creating a shared vision based not only on Heber's dream but also on the collective dreams of all the *Yayasan* members.

Creating a Vision. The first order of business was to define the vision for the center based on whom the *Yayasan* wanted to serve and how they wanted to serve them. The meeting to define this vision was held at the home of a *Yayasan* member, as were subsequent meetings and workshops. In order to maximize participation by the assembled group, I structured this first workshop using a series of small group exercises. Each group would develop responses to open-ended questions; share those responses with the group as a whole, and then together we would create a common list based on the inputs from the small groups.⁵ For this brainstorming exercise, I presented three simple rules: (1) everyone should participate; (2) no one should criticize any idea; and (3) one person must record all the groups' answers. In order to guide our work during this workshop and to begin the process of collaboration, I posed the following five questions to the group:

1. Who are the people you hope to serve?
2. What do they expect?
3. What do you expect out of this youth center?
4. What might stand in the way of making this place a reality?
5. In one sentence, how would you describe the vision for this camp to a friend?

What emerged out of that workshop was a consensus on the vision for the youth center. But, perhaps more importantly, what emerged was a unified spirit among the *Yayasan* and an excitement for the project that, according to Heber, had not been present before. By working together, we began to see possibilities for the project as well as some limitations. Finally, by working together, we witnessed the unifying force of consensus building as a way to begin to transform a dream into a reality. As Hamdi asserts, an inclusive process like the one I used goes beyond planning for and building projects and enters the realm of community building.⁶ This is the vision statement that resulted from our initial workshop:

The youth center is a place for evangelism, education, counseling, retreat, and recreation for youth from all area churches and from the community at large.

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Establishing Objectives. The next step was to create a series of broad objectives that supported each element in the vision statement. Based on discussions over several workshops, we developed the following objectives in order of priority:

Objective 1: Evangelizing. Provide a place that supports the evangelism and outreach programs of area churches.

Objective 2: Education. Provide a place that supports the highest quality education and counseling for visiting youth.

Objective 3: Retreat. Provide a quiet, secluded place for retreat from the pressures of modern life.

Objective 4: Recreation. Provide a place for recreation and entertainment for teenagers -- both as individuals and as teams.

Objective 5: Support. Provide the best possible dining, sleeping, and bathing places for staff and youth.

TRANSFORMING DREAMS INTO REALITY

While I thought it essential to bring the dream into a clearer focus, the resulting vision and objectives were of little practical help in terms of planning and design. What we needed next were design goals that could be used to achieve these objectives. While not directly linked to the objectives, these goals would form the map that we would follow later in the design phase.⁷ Moreover, these goals, as described in chapter one, partially constitute the *adat*, or shared beliefs, that will guide the design effort.

Developing Design Goals. With a variety of *Yayasan* members present, we developed the following goals over several workshops. The process was straightforward in that I would have the participants, either in small groups or as one large group depending on the number of people present, answer open-ended questions relating to the four broad categories of concern identified in *Problem Seeking*: function, form, economy, and time.⁸ This role of questioner is an important one, and the importance is stressed by Peña, who states, designers "... do not have to know everything the client knows, but they should know enough of the client's aspirations, needs, conditions, and ideas that will influence the design of the building. For this [they] have to know the right questions to ask...."⁹ Within each area I might ask ten or fifteen questions. For

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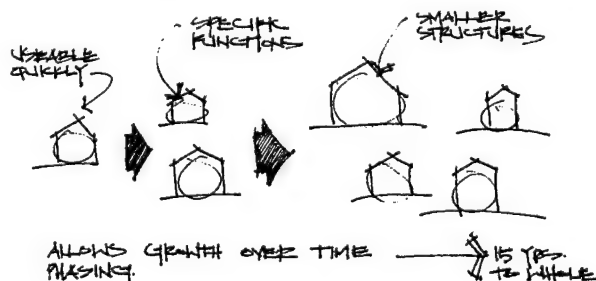
instance, in the *function* category, one question was, "If privacy is important, how do we allow youth to maintain a sense of privacy while still allowing for group interaction?" In the *form* category I asked, "How should this project respond to the natural environment?" An example of one of my questions in the *economy* category is, "What is your goal for cost effectiveness in terms of life-cycle and initial costs? For clarity, I have subdivided the goals into three areas that correspond roughly to each goal's general focus. It is important to reemphasize here that these goals resulted out of lengthy dialogue with the *Yayasan*. While these goals are their goals, in that they generated the goals in response to my questions, I fully support all of them and in fact I would have had similar goals for the project even without their input.

Categorizing Goals. The three areas of goals are planning, architecture, and engineering. Further, the *Yayasan* ranked the goals within each area by order of importance to the project. While the ranking is good in that it establishes a relative importance, the *Yayasan* members were clear in their request that we try to incorporate all of the ideas into the project regardless of ranking, but, where conflicts arise between goals, we are to give the higher ranked one preference. In order to ensure that I heard and interpreted the answers correctly, I summarized the discussion pertaining to each concept in a simple statement of the problem and its solution. To assist understanding of each goal during subsequent workshops, I created graphic icons that captured the essence of each goal. This technique, which I adapted from the work of Peña and Alexander¹⁰, worked extremely well in facilitating communication across language barriers. What follows are these goals: first with a short statement of the problem, then a prescription for solving the problem, and finally the icon.

Planning goals. The broadest set of goals relate to master planning and site design issues. In a sense, they set the tone for the entire project.

1. Incremental Growth

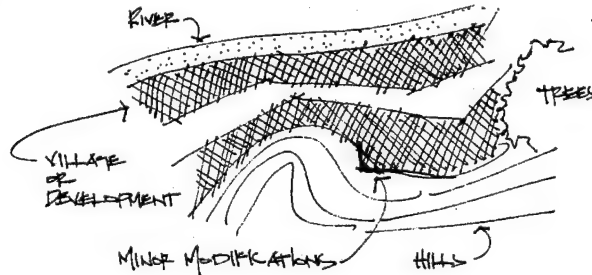
When functions are integrated into a few large structures two problems arise. First, the impact of a large structure on the site may be more severe. Second, phasing options are reduced.¹¹ ♦ Create smaller, functionally specific structures that can be added one at a time as funds and resources permit.



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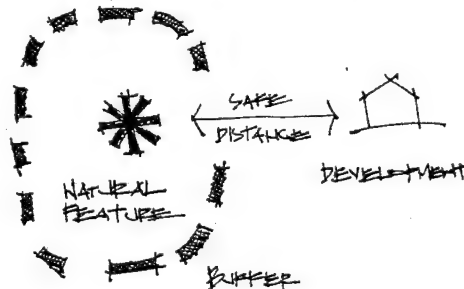
2. Fit With Nature

Development in Kalimantan, especially since transmigration began, has typically ignored the challenges of nature. Hills are leveled, valleys are filled, and trees are completely eliminated to make room for buildings. ♦ Work with the site. Listen to its requirements in terms of layout, orientation, and access. Make minimal modifications and in general seek a fit with nature. Chapter four deals with my analysis of the site and it is through such an analysis that a fit may be found.



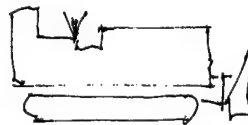
3. Preserve Natural Features

It is easy to build in the best locations. ♦ Identify those areas worth keeping natural and keep development away from them.¹² These areas include the waterfall: older growth trees near the falls, the highest knolls with good overlooks, and the streambed that crosses the site.



4. Use Dozer Sparingly

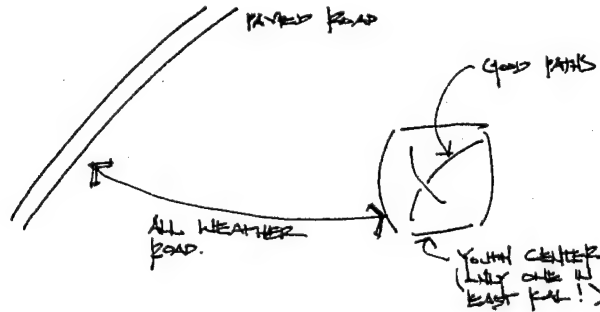
To fit buildings on a site with hills and valleys it is easy to give in to the modern solution of grading. But when this occurs, not only is the fit with nature jeopardized but in practical terms, the overall cost and the potential for erosion are increased. ♦ Clearly, some earthwork will be required. But, where possible, site facilities in a manner complementary of the natural environment and choose construction methods that make this easier.



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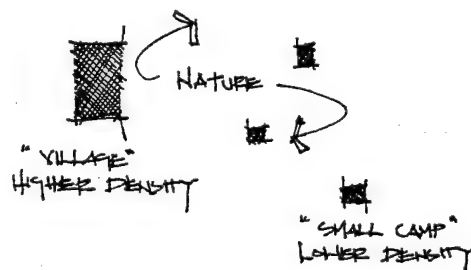
5. Good Accessibility

The rainy season can be hard on unimproved roads, and building new roads is very expensive. ♦ Use the existing roadbed for access. In order to have access throughout the year, repair that road by providing adequate drainage and a durable surface. Also, inside the site, build footpaths that will not erode.



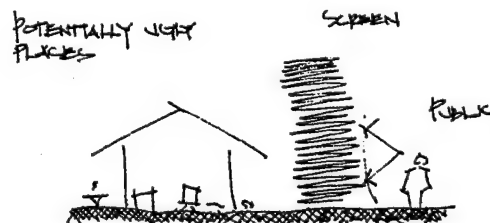
6. Variable Density

The small site could be consumed easily by paths and buildings; especially if the latter were evenly distributed to give each building its own individual area. If incremental growth isn't planned correctly, the entire site would be ruined. This should be avoided. ♦ Vary the density according to function. Concentrate most of the buildings in one area, like a village, so the majority of the site can remain natural [In chapter five, I look closely at the morphology of a traditional Dyak village which will serve as a model for this project]. Smaller clusters of buildings, similar to small camps, can be spread out as appropriate.



7. Hide Ugliness

It is a fact of Indonesian culture that some places receive less maintenance and upkeep than others and may be an eyesore to the general public. ♦ Identify such places and hide them from public view. Likely candidates include the staff housing, the shop, and the maintenance yard.



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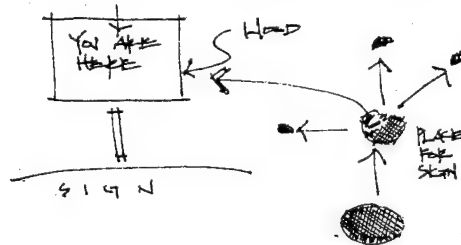
8. Privacy

In the din of activity at a youth center, it can become easy to feel overstimulated. ♦ Provide secluded areas nestled in natural surroundings where individuals or small groups can go in order to gain some privacy and space for personal reflection.



9. Simple Wayfinding

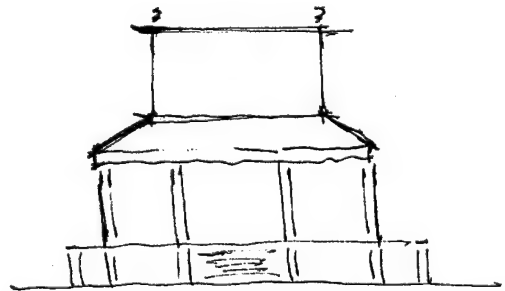
Getting lost in the jungle can be a frightening experience. ♦ Layout the activities in a manner that simplifies wayfinding. Provide a logical system of circulation to all activities. Where needed place simple signs to point the way.



Architectural goals. At the level of individual buildings, the Yayasan agreed on six broad goals that will guide the design effort.

1. Kalimantan Style

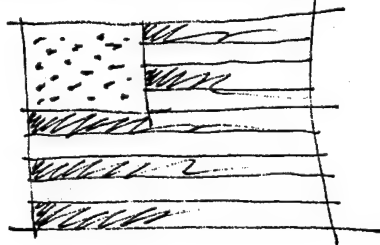
In the rapid pace of modernization underway across Indonesia, traditional styles are being overrun by a universal esthetic. This can lead to a loss of cultural identity and should be avoided in this project.¹³ ♦ Use a design language that respects and builds on the best features of Kalimantan style. [In chapter five, I review the typological structure of Kalimantan architecture].



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2. Part American

The Yayasan recognizes that this project is unique in that an American architect is responsible for the design. ♦ As appropriate, the architecture can take some liberty in expressing a character that is neither "vernacular" nor "American" but in some ways is an interpretation of both. As such, it is suitable for the project to represent, to a degree, my design philosophy of transformation. I discuss theories on transformation in chapter six.



3. Value of Esthetics

Sterile, shabby, unkempt facilities reflect poorly on the program as a whole. ♦ The Yayasan recognizes the value of esthetics and wants to find an acceptable balance between cost and quality.



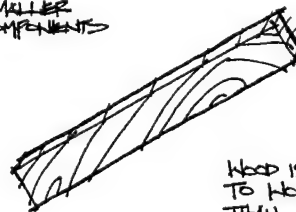
CARVINGS AND
OTHER
DECORATIVE
TOUCHES.

- QUALITY CONSTRUCTION
- ONGOING MAINTENANCE

4. Self-Build

Contracting construction services can increase the total project cost due to labor, overhead, and profit charges. ♦ Where possible, design buildings or parts of buildings that can be built by volunteers from area churches.

SMALLER
COMPONENTS

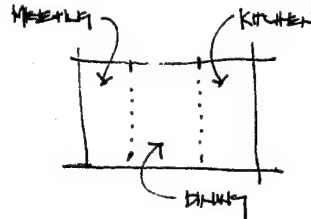


WOOD IS EASIER
TO WORK WITH
THAN STEEL OR
CONCRETE.

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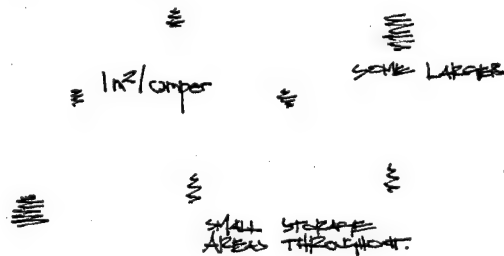
5. Multi-Use

Because all the facilities will not be available at the outset, the first buildings should support a multiplicity of uses. ♦ Leave interior spaces as open and flexible as possible, especially in the public buildings like the classrooms, meeting hall, and dining hall.



6. Scattered Storage

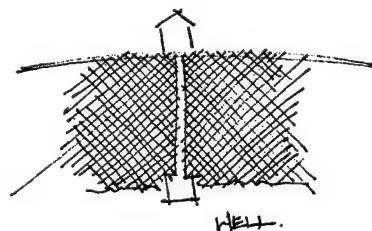
Storage needs can easily be overlooked. When this happens 'stuff' requiring storage clutters the usable spaces. ♦ Scatter storage areas across the site in conjunction with activity spaces. Vary the size according to need. At a minimum plan for one square meter of storage per guest for a total of 200 square meters of storage throughout the site.



Engineering goals. The last category of goals deals with engineering issues. These goals will guide the team's engineers as they design their pieces of the project. While at first glance these may seem like the goals of western educated professionals, they were in fact generated by the Yayasan. The members of the Yayasan recognize the shortcomings of their culture, especially when it comes to creating and maintaining public infrastructure, but they want to invest in the right solutions not the expedient ones.

1. Good Water

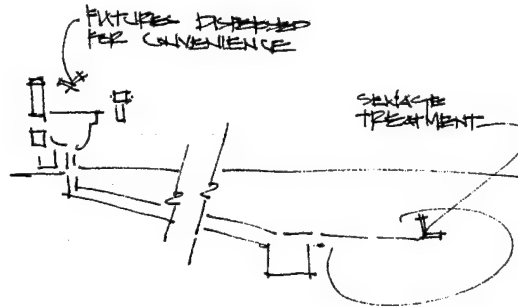
Contaminated water is far too common in the local area. Both piped and surface water are suspect. ♦ Use a closed-loop water delivery system like a well. But even with such a system, the water quality should be tested regularly.



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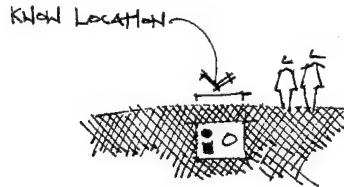
2. Sewage Treatment

The easy way out is to pollute -- especially with sewage. This is at odds with the Biblical call to stewardship of natural resources. ♦ Use proven sewage treatment methods in all cases. Also make it convenient to use fixtures connected to the treatment system.



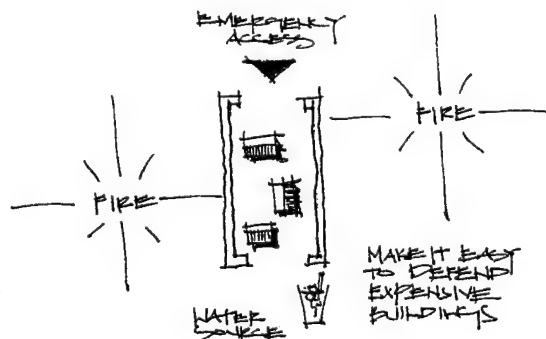
3. Hide Utilities¹⁴

Overhead wires and above ground pipes can quickly detract from the beauty of the natural setting. ♦ Place all utilities underground in a protected enclosure. To minimize damage, utilize a system that identifies where the utilities are located.



4. Fire Protection

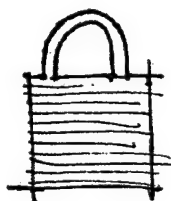
In the local area, fire departments are few, so reliance on their resources for fire protection is unwise. Where people and activities are there will be a greater potential for fires. Also, since the Great Fires of Kalimantan in 1983, dry season fires have been a major concern. ♦ Through site planning, engineering, and building design, create a center that can be easily defended against fire.



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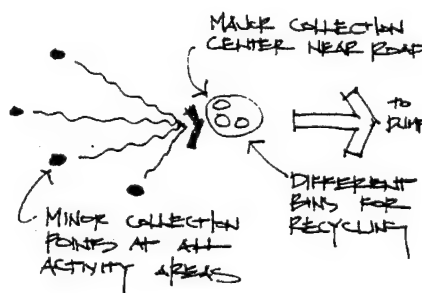
5. Security

Theft and vandalism are a problem in the area. Moreover, isolated buildings are difficult to protect. ♦ Create an environment that is easy to guard. Where possible, bring activities closer together in areas that can be easily monitored.



6. Don't Forget Trash

One quick way to spoil the beauty of the natural environment is to litter it with trash. ♦ Make it easy to throw trash away by providing small collection points at all activity nodes. Place one collection center near the access road. However, be sure to keep this spot hidden from public view as it will likely be unsightly.



DETERMINING THE PROGRAM

With the creation of a clear vision, objectives that support that vision, and design goals relating to those objectives, the next step was to develop, in detail, the program for the center. In purely physical terms we needed to establish the requirements that supported these objectives and goals. If the objectives and goals formed the overall map, the program became the list of places to visit on that map. The development of this program occurred in stages. First, in one workshop with the *Yayasan*, we created and prioritized the general list of spaces required to support the identified objectives. Then, because of the detailed and time-consuming nature of the exercise, Gordon, Heber, and I outlined the physical requirements for those spaces. These were then re-presented for discussion, revision and approval by the *Yayasan*. The benefit in basing this work on the identified objectives was that the activity spaces were determined in

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a structured way rather than in a random fashion that might have occurred if we did not have clearly defined objectives to check each requirement against. For instance, someone had the idea of building a swimming pool to support the recreation objective. While in itself a pool sounds like a good idea, after much discussion we decided that the cost of building and maintaining the pool could jeopardize the realization of more important objectives. Only after a consensus was reached did we agree to remove that requirement from the list of activities.

It is also important to note that there were other groups involved in the development of this list of activities. On two occasions, I held workshops with young people from area churches and solicited their input. Their dreams were presented to the *Yayasan* and, where possible, integrated into the final program. Perhaps the most unique idea that came out of those workshops was the suggestion that the youth center include a zoo! One young man loved going into the interior and watching orangutans and he thought it might be nice to have some at the center. For a number of reasons, the *Yayasan* decided against this rather creative idea. The final program, subdivided according to objectives, is listed in Tables 1 and 2 below:

Table 1. Program of Activities Requiring Buildings.

Objective	Space/Activity	Occupancy	Size (m ²)
<i>Evangelizing and Education</i>	Meeting Hall	200 people	150
	Classroom 1	50	45
	Classroom 2	50	45
	Classroom 3	50	45
	Recording Studio	3+	44
<i>Retreat</i>	Secluded Gazebos (5)	2-5 ea	4 ea
<i>Recreation</i>	Gameroom/Canteen	--	55
	Sport Canteen	--	50 (located in recreation area)
	Basketball Hall	--	651
	Volleyball Hall	--	345
<i>Support: general</i>	Dining Hall	200	231
	V.I.P. Dining Room	10	16 (can be in dining hall)
	Kitchen	8	63
	Gate House	1	4
	Administration	4+	61
	Clinic	3	46
	Shop	1+	92
	Public Restroom	5 stalls	23 (can be in other buildings)
	Storage	--	30 (can be in other buildings)

[table continues on next page]

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[Table 1: continued]

Objective	Space/Activity	Occupancy	Size (m ²)
<i>Support: Staff Accommodations</i>	Speakers' Apt.	4	60
	Guest Apt.	3	50
	Staff Apt.	8	106
	Staff House 1	2	81
	Staff House 2	2	81
<i>Youth Accommodations</i>	Tent Platforms (16)	10 ea	12 ea
	Restrooms (5)	2 ea	6 ea
	Dormitory 1	20	153
	Dormitory 2	20	153
	Laundry	4	23
Total: 52 structures			2929

Table 2. Program of Activities Requiring Planned Open Space.

Objective	Space/Activity	Occupancy	Size (m ²)
<i>Education</i>	Amphitheater	600	313
<i>Recreation</i>	Volleyball Court (1)	--	345
	Badminton Courts (2)	--	90 ea
	Air Rifle Range	--	90
	Jogging Path	--	--
	Ropes Course	--	--
	Frisbee Golf Course	--	--
	Water Slide	--	--
<i>Support</i>	Maintenance Yard	--	23

APPLYING THE CONCEPT OF PARTICIPATION

It is appropriate to evaluate our accomplishments against the concepts of participation described in chapter two. In the short time we were in Samarinda, we accomplished a fair amount of planning work: creating a vision, establishing objectives, articulating design goals, and writing a program. As I take stock in these accomplishments it is clear that in terms of the scale of participation we did end up slightly to the right of center. In terms of degree of involvement, I think we did reach the co-decision level. But did the concepts of participation outlined in chapter two apply in this case? If so, how did they affect the process?

User Involvement. I heard Peña's call for the client to be a participating member of the project team. From the first day, the users were involved in the planning for the project. The active involvement of the *Yayasan* testifies to their level of interest for this youth center. Although the members of the *Yayasan* worked in other jobs during the day, they spent several hours with us nearly every night during our time in Samarinda. This selfless commitment to the project motivated me to carry through with the participatory process despite objections from members of the design team who felt it was taking too much time. Frederick (Ellia) Ellia is one example of this dedication to duty. Ellia is a planner at the city building department, and, during our visit, he was completing advanced computer training classes. Despite these classes, he still had work to accomplish at his office so he would go in early in the morning and late at night after we finished our meetings to finish his professional work. Ellia did not miss one workshop, and because of his expertise in planning and architecture, his contributions were invaluable. In fact, when we were trying to define what the "Kalimantan style" was, he reproduced a copy of an extensive handbook, still in draft form, describing East Kalimantan architecture and he gave that book to me at no charge. He told me that he wanted to give me something in return for involving him so deeply in the planning process. I witnessed numerous benefits of user involvement, including one described by Hamdi: The involvement of users who have unique values and perceptions may lead to an improved knowledge of local conditions and to a better understanding of what may work.¹⁵ Obviously, without involving Ellia, I would have never even heard of the draft handbook on Kalimantan architecture.

User Decision Making. Involving users requires more than simply seeking their opinions. It is fundamentally about giving them the power, skills, and resources to make effective decisions. When this does not occur, according to Schnekloth and Shibley, the whole process "may sound suspiciously like a process of cooptation, a 'feelgood' experience where everybody gets their say and then the professionals get to work."¹⁶ The members of the *Yayasan* were putting their trust in me and I, in turn, felt obligated and honored to recognize and integrate their experiences and their knowledge. What was most surprising, however, was the time it took to reach a consensus. Questions that I thought would be answered in short order were mulled over for quite some time before an answer would be decided upon. For example, when I asked about the relationship between life-cycle and initial costs, I thought the answer would be quick in coming. But, in fact, the *Yayasan* members discussed this topic at length and developed a comprehensive answer. This is a direct manifestation of the cultural imperative to seek consensus rather than conflict. Where a group in

the United States might discuss the issue briefly, and if need be vote on a direction, the Indonesian approach is to discuss the issue until everyone reaches an agreement. This did lead to some long meetings but no one seemed the least bit concerned about the time it took to develop consensus.

Group Focus. Working with the users and turning the decision-making responsibilities over to them required a focus on teamwork. Given the Indonesian cultural orientation favoring collaboration, this approach was natural and appropriate. Hamdi proved to be correct in claiming that when the focus is on the group, interests can be resolved collectively through negotiation and dialogue aimed at reaching meaningful solutions.¹⁷ He also is correct in claiming that this partnership is important "because not only do we seek to understand our actions through the eyes of other parties with whom we have been involved, but also because we want to understand how and why they see what they see in the way they do."¹⁸ I also found truth in Schneekloth's and Shibley's belief that this collaborative attitude "requires vulnerability and the capacity to care not only for the product of the work, but also for the process, the people, and the place."¹⁹ I did more than help the *Yayasan* develop a program. I made new friends and developed new relationships that will hopefully last a lifetime. I remember riding on the back of Heber's motorcycle during our trips to the library and youth meetings. As we rode together and had time to talk about more than the project, Heber was able to share with me some of the stories of the kids he has worked with and I could sense his commitment to serving them. In my case, Heber was always there and he was always patient -- even in translating my architectural jargon into a vocabulary easily understood by the *Yayasan*. We developed a friendship that I hope to see prosper over the years ahead.

Workshop Atmosphere. The workshop provides the setting for working together to reach agreement. Hamdi believes this is the case because workshops "provide the structure for drawing out problems, modifying interpretations, defining solutions, and building consensus and partnerships."²⁰ I found this assertion to be true in the workshops I conducted during my visit; but I also found each one to be different, and, hence, each one required a unique approach. When enough people were present (at least 6 because this would allow for two or three small groups), I would have the participants work in small teams of two or three people each. After these teams had time to reach a consensus on the issue at hand, we would gather together to reach an agreement among all the participants. This incremental consensus building worked very well; I think, in part, because in a smaller team people are more apt to offer their opinions and, when they gather together as a large group, they have

already built some level of confidence in the ideas they articulate to that group. For instance, one *Yayasan* member, Peniel Maiaweng, was hesitant to speak in front of the entire group initially. But when he joined a smaller team, he expressed his ideas clearly and convincingly. Later, when that team was presenting ideas to the entire group, Peniel was able to make a strong case for his ideas. I enjoyed watching Peniel become more and more active in the discussions as the process moved forward.

A strategy that I adopted from Hamdi involved the modulating of the workshops. He recommends that workshops be given primary themes and that each workshop should deal with issues according to the current progress. Stage one would be top priority items; stage two would be secondary priority items; and so on.²¹ For this project, I conducted ten workshops and each had a slightly different theme.²² I found this to be an effective way to keep the the group focused on key issues. Where I differed with Hamdi is that I used this modulation as a way to slowly introduce the more difficult and more important issues. Rather than begin with the highest priority issues, I started the investigation with secondary issues as a way of 'breaking the ice' and warming up the group to each other, to the process, and to the project. For example, by looking at who the customers were and what their expectations were I was able to prepare the group for the more difficult task of defining, clarifying, and writing its own vision statement. Regardless of how they were structured, the use of workshops, where participants collaborate in order to develop solutions, was essential to the completion of this project. In a short time, we were able to build a strategic plan that I could use as a navigational tool during the design phase.

On-Site. The idea of locating the workshops on-site is fundamental. I witnessed one clear benefit of locating the workshops where the users live and work. Namely, this site-based strategy mobilized the interests of the wider community and attracted others, who, in a more traditional process, might have been unheard but in this case were able to offer a different point of view.²³ For instance, while there were a number of practical reasons for locating the workshops in the homes of various *Yayasan* members (e.g. convenience, availability, etc.), one side benefit was that I was able to incorporate the wives of the *Yayasan* members into the discussion. In the beginning, the cultural pattern was clear: the men, who were on the *Yayasan*, would participate in the framing of action in the workshops; and their wives would support this activity by providing food and drinks during the course of the evening. On a few occasions, only after I established a rapport with the women, I was able to solicit their input. A difference in expectations was apparent. In general, the men envisioned the

center as a place of learning, recreation, and adventure; whereas the women wanted the center to be a place where relationships could be formed and friendships nurtured. This difference in expectations based on gender, while complementary, was also evident in the work of the two groups of youth involved in the center's planning. The value added to the process as a result of the input from the wives of the *Yayasan* members and from the youth underscores the importance of a site-based strategy. I believe that if I used a more traditional, client-architect relationship where I worked just with the main client (*Yayasan*) and only met with that client periodically, the project would have suffered. As it was, since I was literally working in their homes and in their neighborhoods, the depth and breadth of involvement was more diverse and more beneficial to the project. Because I was giving credence to groups whose voices might otherwise have gone unheard, it was important that I do this in a manner that would not directly violate any cultural norms. While not directly critical of the male-dominated structure of the *Yayasan*, I was able to convince them that opening up the planning process to more voices would only be beneficial. With this they agreed, and in the end they supported all of my requests to meet with other groups and with other individuals.

Improvisational Nature. I did not go into the first meeting with a clear agenda mapped out for the entire two week visit. Rather, I started with a broad outline of work I wanted to accomplish. I knew I wanted to meet with the *Yayasan* as often as possible in order to develop a program for the center. But I did not know that what they needed first was a strategic plan as a way to guide the entire planning process. I knew I wanted to meet with young people who would be the end users of the center. But I did not know how or where these meetings would occur or even if there were young people who had the time and interest to participate in such workshops. I knew I wanted to generate design goals that would stimulate design decisions. But I did not know when these goals would be generated or how long it would take to do this, given the fact that this process requires an open-ended inquiry. So, in the end, I knew where we needed to go but I was not quite sure how to get there. Together we mapped out the route and together we made it to our final destination. Improvising is risky. It means that the architect is not in control. The mandate is for flexibility. This requirement is magnified in a situation such as the one I found myself in -- working in a foreign country as a volunteer architect, out of a suitcase, with a portable drawing board, and with people I have never before met. Predicting the outcome is difficult in a situation like this, and predicting the path to that outcome is impossible. Logistical challenges surface. Schedules come into conflict. New requirements appear. Hamdi was perhaps correct in stating that

INTERWEAVING

"improvisations then become a means of devising solutions to solve problems, a process full of inventive surprises..."²⁴ Just one example of such improvising was our trip to the villages of Long Sule and Pepa Baru. These were not identified as necessary until well into our visit. As we were developing the concept *variable density*, we discussed various ways that this could manifest itself in design terms. I was inspired by the stories I had heard of Dyak villages and thought this might be an appropriate model. From what I heard, these villages were areas of fairly dense built form within an overall fabric of open space. The problem was that I had never seen a Dyak village so I could not effectively use one as a model for this project. Gordon, as resourceful as ever, recognized the need for visiting a village and set up the trip. Since the trip would take two full days out of our schedule in Samarinda, we had to be even more effective with our time there. But Gordon knew there was another benefit in going to a village, and that was in the relationships we would develop with the people of the village -- some of whom might even be users of the youth center. The results of my survey of these villages are presented in chapter five.

LESSONS LEARNED

Participation involves taking risks. It opens the architect up to a loss of control. It is also a way to learn more about others and much more about oneself. For me, on the drive back to the airport in Balikpapan, on those narrow, winding roads, I had some time to reflect on what I learned from this participatory process.

Similarities Across Cultures. Heber, Ellia, Peniel, and Gordon all have different backgrounds and different outlooks, but they still have many of the same needs that I have. On a basic level we all need food and shelter, but on another level, we all need to belong to a caring, supportive community where our ideas are valued and where we can contribute something of lasting value. Heber does this through his evangelistic outreach to street kids. Ellia does this in his job as a community planner. Peniel does this through the associations he belongs to at his school. Gordon does this through his work as a missionary. I do this through my work as an architect. What I learned in Samarinda was that working across cultures is not about learning as much about 'them' as possible but it was about learning about 'me' and what my beliefs and motivations are. We do have cultural difference that define us as individuals and define our communities, but I found that our similarities outweighed these differences.

Role of the Professional. There is a clear role for the designer in participatory processes. It is not about simply documenting the dreams of a client group. To the contrary, it is about dreaming with the clients and working

with them to develop that dream into a reality. Architects are skilled in formulating and solving complex problems and we can use this skill to design a bank across the street or to plan and design a youth center in Indonesia. Because it is open-ended and because there is never one right answer, our work requires a set of skills that is transferable across cultures and across climates. I believe Schneekloth and Shibley are right in claiming that the professional is responsible for critically evaluating the ideas expressed by the users and by other design professionals. They assert that critical theory requires the practitioner to ask questions on three layers: "The first seeks to understand empirically what is; the second tries to understand why this particular condition exists, and the third attempts to uncover the underlying structure and to critically explore the implications of the condition."²⁵ Through active listening, confirmation, and dialogue we facilitate communication in a way that simple transcribing cannot do. We do this by helping the users formulate ideas that may be lying just under the surface waiting for a chance to be articulated. Additionally, as professionals, we are obligated to document that dialogue fully in ways that allows all the participants to engage in the conversation. This may mean that we simply take notes on the decisions reached or it may mean that we translate difficult goals into easily understandable graphic forms so that a consensus can be reached among a diverse set of people. Because large amounts of information are required to expand the range of possibilities, practitioners must be able to organize that information in a manner that makes it pertinent and meaningful to the wide array of people who need to act on that information.²⁴ We also have the responsibility to set the agenda, to guide the process so that all the decisions required to develop the product are made. We usually do not have the luxury of experimenting with different approaches if only because our clients do not have the time to waste experimenting. Decisions need to be made quickly. As Peña asserts, we stimulate this decision making by generating options, and evaluating alternatives.²⁶ Finally, the professional must work to ensure that the level of intervention is appropriate. Soemardjan and Breazeale found that development programs in Indonesia are more successful if they serve the needs of the community; are consistent with the value systems of the community; and are within the technological capabilities of the community.²⁷

PARTICIPATION IS NOT ENOUGH

The act of interweaving requires more than just a focus on user participation in planning and design. While important, working with the users to identify their dreams and their needs is only one thread in a rich and diverse fabric. Equally important is anchoring the architecture in the physical characteristics of the place -- its natural features, and its building traditions.

PART TWO

ANCHORING

The true basis for the more serious study of the art of architecture lies with those more humble indigenous buildings everywhere.... Functions are truthfully conceived and rendered invariably with natural feeling. Results are often beautiful and always instinctive.

Frank Lloyd Wright



Fig. 10: A Balinese pavilion, or bale, responds to functional and climatic needs with its dominant roof and ambiguous edges (after Beng, 1994a).

CHAPTER FOUR

LISTENING TO NATURE'S RHYTHMS

In [Southeast Asia] we have plenty of sun, so I keep the sun out. We have a lot of rain, so I keep the rain out. We need a lot of shade so I provide for it .. [and] because we are living in a hot climate we should have cross ventilation and as much open space as possible.¹

This statement by Malaysian architect Jimmy Lim clearly summarizes the traditional approach for creating architecture that responds to the rhythms of nature in the tropical zone of Southeast Asia. While I do not intend to present an exhaustive study of climate-and site-related issues here, I do want to highlight a few key climate-related ideas that influenced the development of this project. Also, I will present several of the site analysis diagrams that I used during the design effort. Climate and site are so closely interrelated that they should be viewed together. When understood and integrated into the design process, these issues become vital threads that anchor the project in the specifics of the place. In fact, many of the principles of vernacular architecture discussed in chapter five result from climate and site forces.

CLIMATE

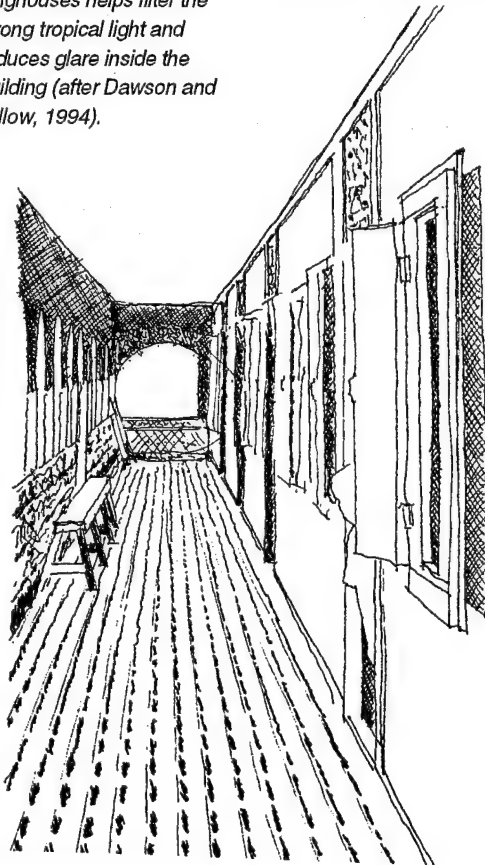
One of the first things I noticed when I arrived in Samarinda was the oppressive humidity. When the wind stopped blowing, I started moving just to keep some wind currents flowing past my skin to aid in evaporation. And, on those few days when I forgot sunscreen, it did not take long before a burn started to develop. At the equator, the approach to design is fundamentally different from what I was familiar with in the United States. Correa's adage that "form follows climate"² has merit. Moreover, as Beng asserts, "Climate is clearly one of the prime factors of culture, and therefore built form. It is also the mainspring for all the sensual qualities that add up to a tropical architecture."³

The climate in Indonesia is typical of most tropical zones and is best summarized by Koenigsberger, et al:

The most prominent characteristics of this climate are the hot, sticky conditions and the continual presence of dampness. Air temperatures remain moderately high, between 21 and 32°C with little variation between day and night. Humidity is high during all seasons. Winds are generally of low speed, variable in speed, but almost constant in direction.⁴

Although the importance of climate cannot be challenged, it is not the only factor that influences built form. According to Rapoport, "Climatic determinism has been widely accepted in architecture as well as cultural geography....One need not deny the importance of climate to question its determining role in the creation of built form."⁵ He adds that built "...form is not simply the result of physical forces or any single causal factor, but is the consequence of a whole range of socio-cultural factors seen in their broadest terms."⁶ This fact is important to keep in mind when considering climate issue and this is why anchoring architecture requires more than a sensitivity to climate. Nevertheless, Indonesian architecture is strongly influenced by the need to adapt to the tropical environment with its intense sun, high humidity, and heavy rains.

Fig. 11: The porch on Dyak longhouses helps filter the strong tropical light and reduces glare inside the building (after Dawson and Gillow, 1994).



Sun. Controlling the amount of incoming solar radiation is critical in equatorial zones. Blocking direct sun is one of easiest tasks of tropical architecture. Historically, this has been done with generous roofs and wide overhangs. The overhangs are essential because they help shade the vertical surfaces from the intense heat of the sun. Interestingly, Correa compares the ideal education places in the west (a school-house) with the ideal in Asia (a beautiful old tree).⁷ The tree provides the needed shade. But, where trees are not available, roof forms must be utilized to block the sun. Another concern due to the intense tropical sun is the integration of natural light throughout a building without the integration of annoying glare. In many cases, verandahs are used and the roof is brought low to align with the horizon and thus eliminate much of the glare of the milky sky overhead.⁸ For example, the Dayak long houses in Kalimantan have wide verandahs and numerous other elements that filter light entering the communal living spaces (fig. 11)

Humidity. Because of high daily temperatures, bodily heat loss due to convection or conduction is minimal, and heat loss due to evaporation is reduced when there are no breezes because a small amount of moisture forms a saturated air envelope that blocks further evaporation.⁹ To maintain a degree of comfort, a slow but steady breeze across the skin is required. The breezes in Kalimantan are generally moderate, and, as a result, buildings used during the day should be opened as much as possible to capture the available breeze. When this is done properly, the breeze can be used to great advantage in creating a feeling of coolness as it moves across the skin. In tropical architecture, the use of wide, low eaves and minimal walls work together to achieve this cooling effect.¹⁰ Moreover, the high ceilings under the steeply pitched roofs are ideal for inducing air movements and cross ventilation.¹¹ Sitting under low, sheltering roofs, with filtered light and a gentle breeze flowing through the open walls is the basic prescription for thermal comfort in the tropics. It is the architecture of openness that makes many of the vernacular examples relevant today.¹² In terms of planning and building form, Koenigsberger, et. al offer the following advice to architects working in tropical climates:

As movement of air is the only available relief from climatic stress, therefore vital to indoor air comfort, the building will have to be opened to breezes and oriented to catch whatever air movement there is. In this type of climate buildings tend to have open elongated plan shapes, with a single row of rooms to allow cross-ventilation. Doors and window openings are, or should be, as large as possible, allowing a free passage of air.¹³

After following these prescriptions, the resulting architecture can best be characterized by its transparency. Nevertheless, it is important to remember that openings need to be protected by shading devices or natural vegetation in order to minimize heat gain within the building.

Rain. Almost at odds with this desire for openness is the desire for protection from the rain. Traditional pitched roofs with their wide overhangs are efficient in quickly shedding the water, while allowing the interior places to remain open to catch the breezes. Despite the fact that they spent years developing a single-pitch double roof for tropical regions, Fry and Drew acknowledged that the simple gable roof may be the best solution for hot-humid environments.¹⁴ Because of its parallel eaves, the gable roof protects two walls of a rectangular building from rain and sun, and when the gable end is extended the remaining two walls receive protection as well. Also, the gable roof has a more equalized pressure distribution than single-pitch or flat roofs. The result is less suction during heavy winds and this leads to fewer roof failures. Another benefit is that vents can be

installed in the gable ends and increase the ventilation through the building. As Beng noted, "In the tropics, traditional pitched roofs quickly and efficiently remove the torrential downpour and provide generous space to the interior which the high ceiling is ideal for inducing air movements and cross-ventilation."¹⁵ Another aspect of shedding water is that the sound "... is one of the qualities of tropical architecture which sets it apart from that of other climatic regions."¹⁶

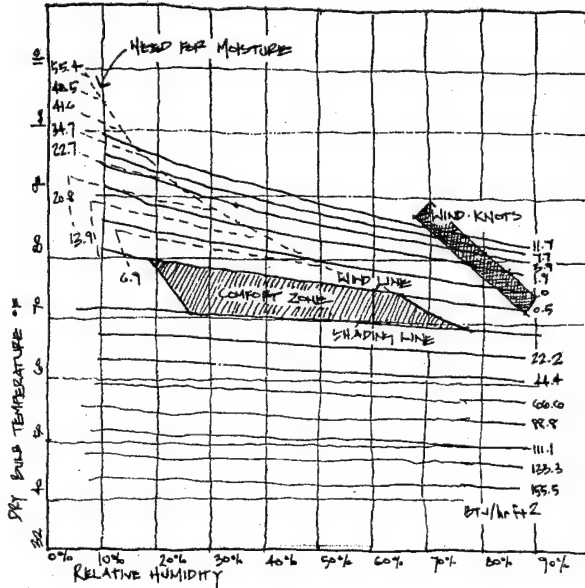


Fig. 12: The bioclimatic chart indicates that the study zone is in the warm and humid sector (indicated by cross-hatched block). Since average wind speed in the area is less than 6 knots, not enough wind is available for total unassisted passive ventilation to move temperature and humidity levels into the comfort zone.

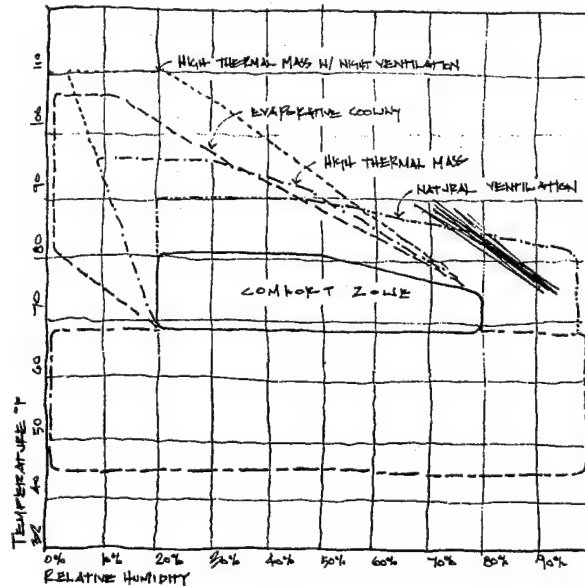


Fig. 13: The building bioclimatic chart illustrates the potential for using different passive cooling strategies at the site. The heavy lines indicate the temperature and humidity plots for each month. Since the lines all fall above and to the right of the comfort zone, natural ventilation is the only useful passive cooling solution.

Table 3. Basic Climate Data (Samarinda, East Kalimantan)

Month	Temperature daily average °C (°F)	Humidity daily average Relative (%)	Rainfall monthly total mm (in)
1994	January	26.1 (79.0)	82.5
	February	26.4 (79.5)	81.0
	March	26.2 (79.2)	80.5
	April	26.2 (79.2)	81.0
	May	26.5 (79.7)	84.0
	June	26.3 (79.3)	85.0
	July	26.4 (79.5)	86.5
	August	26.4 (79.5)	85.5
	September	26.7 (80.1)	86.0
	October	26.2 (79.2)	87.0
	November	27.0 (80.6)	85.5
	December	26.5 (79.7)	84.0
Annualized		26.4 (79.5)	84.0
			2335.0 (93.4)

Table 4. 4-Year Climate Data (Samarinda, East Kalimantan)

Item	Temperature °C (°F)	Humidity RH %
4 year Period (1991-1994)	Daily Maximum	34.8 (95) avg.
	Daily Minimum	18.0 (65) avg.
	Rainfall mm (in)	1836 (72.3)
Wind speed: approximately 4 knot daily average (4.6 mph)		
direction: Dec.-Jun. from North; Jul.-Nov. from South		

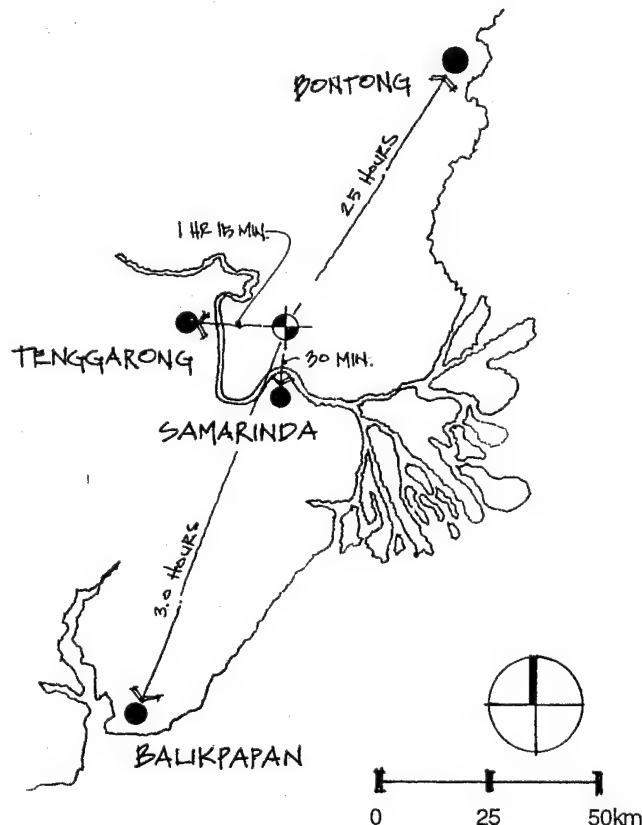
Comment. The consistently high humidity and temperature create an environment that is well outside of the recognized comfort zone during the day. However, at night the maximum temperature drop is 16.8°C (30°F) and the relative humidity falls a maximum of 29%. These nighttime conditions make for comfortable sleeping. The rainfall is substantial, especially given the fact that over 80% of the rainfall occurs in the seven months termed the "wet season." This leads to a significant rainfall intensity that must be accounted for during detailed design. Specifically, if gutters are used (which is the case in many buildings in Samarinda with downspouts connected to cisterns), they must be designed for a rainfall intensity of over 300 mm (12 in) per hour for five minute periods.

PROJECT SITE

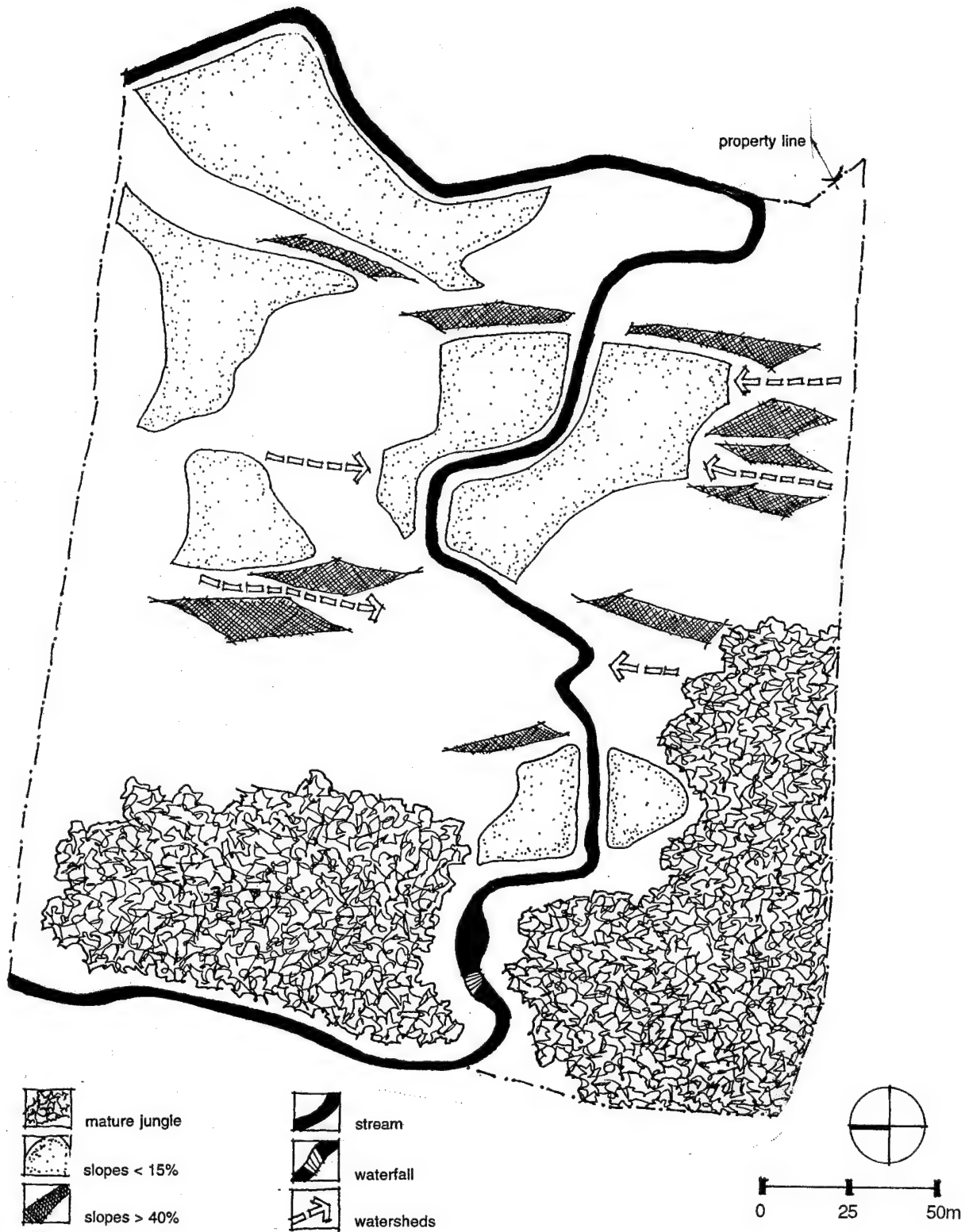
At the most fundamental level, an architecture anchored in the requirements of the place must be well integrated into its site. Architects must develop an awareness of issues dealing with topography, light penetration, vegetation, hydrology, and site climate. As Acocella asserts, "An understanding of place is an increasingly valid material -- however indirect -- in formulating a rooted architecture, open to dialogue with the topos in its various forms: site, place, and context."¹⁷ What must be remembered is that the process of design is a synthesis of issues, and as with climate, site factors alone should not be the driving force behind design. When woven together, site, climate, and the vernacular principles presented in chapter five establish a foundation for an anchored architecture.

Regional Location. The project site encompasses roughly 5 hectares (12.4 acres) and is located in a rural area outside of Samarinda. The distances and travel times from the site to major cities are indicated on the regional location map (fig. 14). The Yayasan recently purchased the site for the youth center because of its rural setting and its natural features (e.g. waterfall, stream, varied topography, and dense jungle).

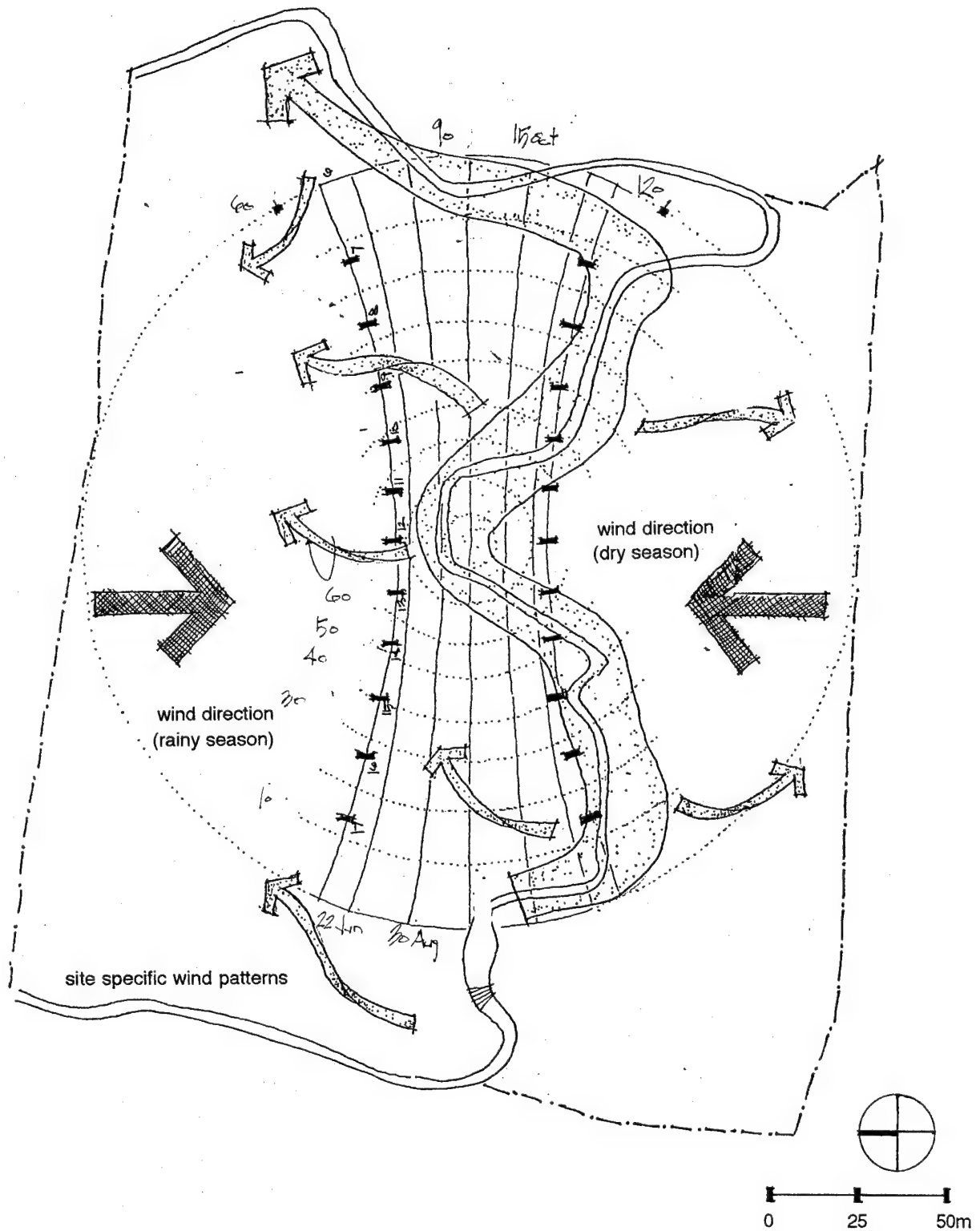
Fig. 14: Regional Location Map. The project site is within an easy drive of several major urban areas. Transportation from these cities to the site will be by mini-buses operated by the Yayasan or the sponsoring organizations.



Natural Features (fig. 15).

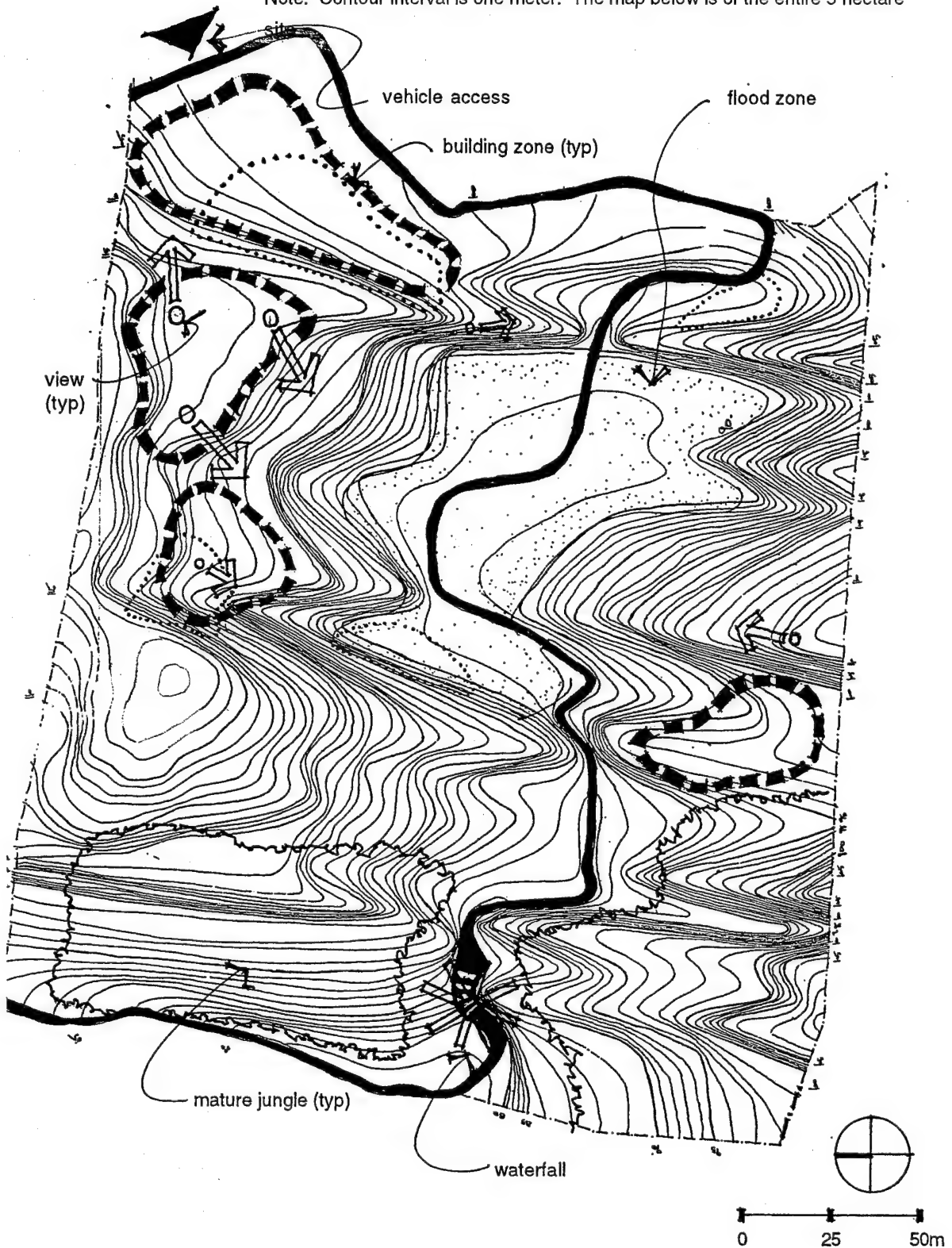


Site Wind and Solar Patterns (fig. 16).



Hypsography and Buildable zones (fig 17).

Note: Contour interval is one meter. The map below is of the entire 5 hectare



CHAPTER FIVE

LEARNING FROM THE VERNACULAR

As discussed in chapter three, the *Yayasan* members decided that they wanted the youth center to reflect the language of traditional Kalimantan design; however, they had trouble articulating what this meant in quantifiable terms. Another goal presented in chapter three called for a development of variable density, possibly modeled after Dyak villages. Since we were in an urban area, there were not any traditional villages to visit nearby. Although a site visit to Dyak villages was not initially in our schedule, it became clear that such a visit was necessary. But these villages were all inaccessible by our team's van, and they were at least several hours away by plane. Fortunately, Gordon saw the need for such a visit and scheduled a flight to the interior through Mission Aviation Fellowship (MAF). It took two flights in MAF's single-engine Cessna to ferry our small EMI team to the very short and very bumpy airstrip above the villages of Long Sule and Pepa Baru. My goal during the visit to these villages was to identify key principles of traditional planning and architecture that could be used in the development of the youth center. Looking at these villages follows Correa's advice to study the rural areas in developing countries when looking for culturally specific principles of design "...because that's where the majority of people live and because that's where the culture really developed."¹ The application of these principles, even in a transformed state appropriate for the current requirements, could help anchor the design in the vernacular building language.

Helmy poses three questions for designers relying upon vernacular principles that are appropriate to review:²

- What are the potential principles?
- What principles are relevant to realize cultural identity and continuity?
- How can these principles be reformulated to fit the contemporary context?

These principles result from the systematic application of societal rules, according to Rapoport, "...and it is this systematicity that leads to styles in material culture and, in this case, to recognizable cultural landscapes."³ In Indonesia, these rules, or *adat* (discussed in chapter one), form the nucleus of local cultures and result in a recognizable building language. Attempting to understand the underlying rules and the resulting principles is, in Rapoport's view, "...probably the only way to generalize and build theory. For one thing, it [such a study] can provide patterns, showing variability and regularities and constancies."⁴ Anchoring the architecture of this thesis project in the local building culture is important for another reason. Many Indonesians are, in the words of Sudradjat, "...striving to regain a cultural past and a traditional identity that [has been] lost in the emergent modernity of today's capitalism.... Expressed here is a search for primordial meaning and cultural roots, an attempt to find in the past a culturally defined identity."⁵ While it may seem odd that a western architect is joining and supporting this process, the idea of cultural cross-pollinization has a long history in Indonesia. I discuss this concept in more detail in chapter six. An understanding of the vernacular language rests on the understanding that tradition can be viewed as a resource. As such, traditions lead to principles that can inform the current design process; and these principles impact specific elements that constitute the built environment.

TRADITION AS A RESOURCE

Vitzthum defines tradition as "...the passing down of elements of culture, where in the case of architecture, elements may refer to patterns for assembling raw material into built form."⁶ She adds that "It is important to remember that one cannot build without using the patterns of the existing built environment to some degree. Traditions are necessary as a starting point, since they reflect a society's proceeding beliefs."⁷ But traditions should not be viewed as static. The act of passing down is continuous, and subtle changes may occur between generations. According to Waterson, "Tradition, like history, is continually being recreated and remodeled...."⁸ In many cultures in Southeast Asia, these building traditions grow out of the collective efforts of the society as a whole, not from architects or builders. These designers are expected to start with models inherited from previous generations and then adapt those models to the users and the site.⁹ Beng believes that "Meaningful directions in contemporary architecture in Southeast Asia can only evolve if there is a deeper understanding and protracted reevaluation of indigenous building traditions..."¹⁰ The work that is detailed in this chapter is my attempt at re-evaluating traditional principles in light of current requirements. I will study both village planning principles and architectural design principles.

Working with Principles. The goal of this re-evaluation is to look at general principles of vernacular architecture rather than styles and forms. In discussing the similarities between vernacular architecture and modernism, Curtis offers some helpful comments:

The best within modernism can be profoundly rooted in tradition; and the best in tradition is to do with a dynamic process of rethinking certain central kernel ideas. Therefore the problem of continuing a tradition is not one of a fossilized reintroduction of old forms, it is on the contrary a question of penetrating the underlying, generating principles of the past, realizing where they are relevant and irrelevant, and then transforming them into present circumstances.¹¹

In the context of Indonesia, Sudradjat asserts that "Indonesian Architecture is the fulfillment of the ideals of functionalism, rationalism and simplicity of modern design, but deeply inspired by traditional architectural principles."¹² The idea that designers can learn from principles derived from vernacular examples is not limited to architecture. Indonesian archeologist and choreographer, Edi Sedyawati, suggests that the best way to anchor a work of art in the local culture is to conduct in-depth studies to extract the essence of various local cultures and apply the results of those studies to new purposes and needs.¹³ In responding to complaints that such a study will result in tired reformulations of past building styles, Beng claims that "Such historicism can be avoided if the design has been based on...principles of the past rather than on acknowledged forms and symbols."¹⁴

Analyzing Elements. There is a long tradition in the profession of looking at individual architectural elements in order to understand the whole. The value of looking at elements may be due in part to the fact that the architect selects as much as creates. Venturi notes that the architect's main work is the organization of a unique whole through the use of conventional parts.¹⁵ He argues that analysis of the parts is valid for architectural criticism.¹⁶ Charles Moore is another architect known for looking at individual elements. In his book with Donlyn Lyndon, *Chambers for a Memory Palace*, numerous elements are identified that are chambers for memories and symbols. One example of such an element is the roof. Under the heading, 'Roofs that Encompass', Moore claims that the most exciting part of the building is the roof. He suggests that the roof describes the extent and shape of the building and helps define the building's place in its region.¹⁷ In Southeast Asia, Beng believes the "visible" roof is one of the critical elements that is a determinant of form because it gives distinction and interest and provides the quickest visual impression of a regional flavor.¹⁸ To understand architectural form, architects can analyze elements, like roofs or

other building parts, and synthesize those lessons back into a whole. The danger in such an analysis is that the translation into architecture can result in a pastiche of forms unrelated to anything other than formalism. For instance, Thom Mayne gave a lecture at UC Berkeley in the fall of 1995 where he tossed a few pieces of chalk on the floor and said that the resulting composition of those simple elements was valid architectural form. This ignores the complex set of variables that influence the structure of the elements as a whole -- from technology to culture, and it ignores the importance of the relationship between elements, which, according to Rapoport, may be more important than the elements themselves.¹⁹ In the next two sections, I will present and illustrate principles I derived from vernacular sources in Indonesia. Clearly, these principles relate to specific elements, but, in the end, architecture should be a complex integration of these elements rather than a simple compilation.

LESSONS FROM KALIMANTAN VILLAGES

The two villages I surveyed were Long Sule and Pepa Baru. These neighboring villages border the Sule river and are only accessible by plane or boat. Long Sule has been in its present location for several generations, but, with help from local authorities, Pepa Baru was recently constructed to minimize the cost of transportation between the village and the shared school in Long Sule. Although the differences between the two villages are startling, the key similarity in their morphological arrangement is a central organizing element. In Long Sule, this element is more like a street and in Pepa Baru it is more like a large plaza. The axial plans of both villages, with parallel rows of dwellings, follows the general pattern found in villages of many maritime cultures.²⁰ Pepa Baru is an exception to the rule that most traditional villages are not "planned" in the western sense, but rather evolve out of long-established general principles based on cultural and societal rules.²¹ Although Pepa Baru was "planned" with help from supposedly knowledgeable authorities, the resulting village is not well liked by the residents nor does it have the same depth and richness as Long Sule.

The following ten principles apply to village planning. Many of the principles were derived from the survey villages, but, in a few cases, examples from outside the villages are shown to illustrate a broader applicability. I understand that generalizing from such a small study group is questionable, but given the time constraints of this thesis, I believe this study is a good place to begin. More importantly, in discussions I had with village elders, I tried to determine if these principles were common in other Kalimantan villages. In the principles I am presenting, this commonality was indicated to be the case.

1. Socially Determined Village Model. Perhaps the most important lesson from my survey of Long Sule and Pepa Baru is that, in the more successful village of Long Sule, social relationships rather than geometric order appear to be the major factor in the placement of buildings. In Pepa Baru, a more rigid geometric pattern is evident.²² Fraser found this simple principle to be one of the only common denominators of traditional village planning.²³

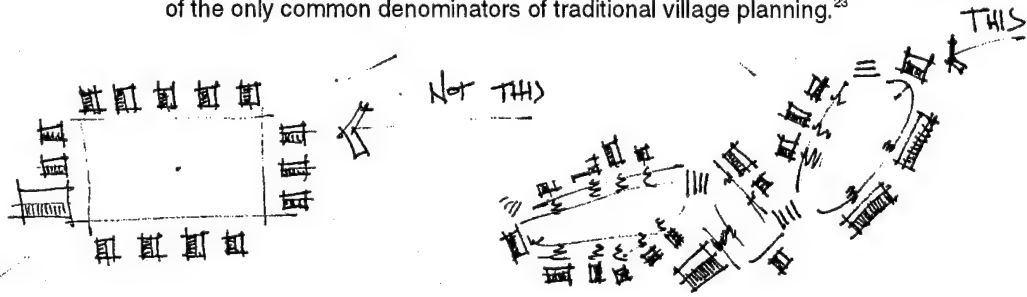
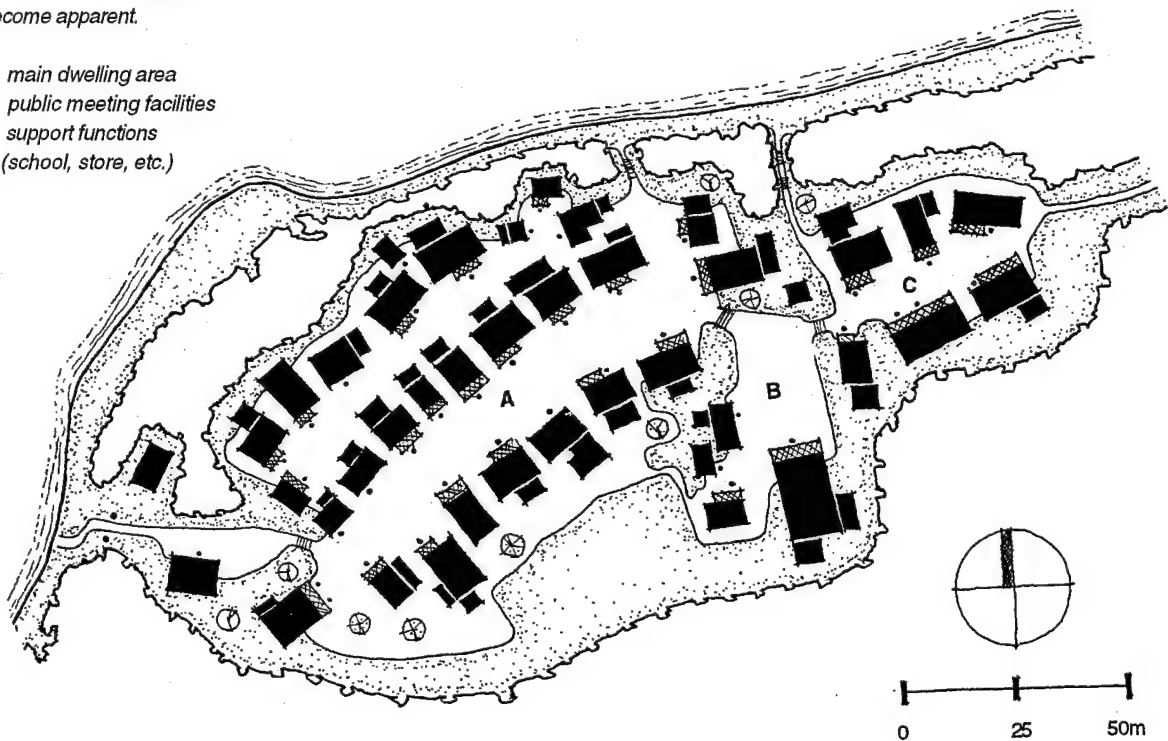


Fig. 18: The plan of Long Sule exhibits a fluid nature that allows the social structure of the village to become apparent.

- a. main dwelling area
- b. public meeting facilities
- c. support functions (school, store, etc.)



Key to Drawing:



main structure



secondary structures



porches

• steps

2. Pedestrian Street. Most traditional villages, including the two I surveyed, are organized around a public, pedestrian street.²⁴ The more comfortable streets have a width to height ratio of 1:1 to 3:1 with the width as narrow as four meters and rarely exceeding fifteen meters. The street becomes an essential open-to-sky space in an otherwise incredibly dense landscape.

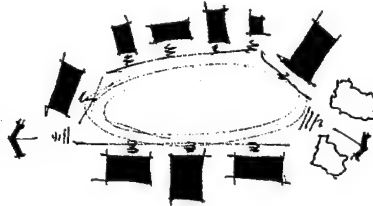


Fig. 19: A comfortable pedestrian street has buildings running parallel to it. The space created for the street becomes a large outdoor room, open to the sky. This feeling of openness and light contrasts with the enclosure and darkness that is constantly present in the surrounding jungle.

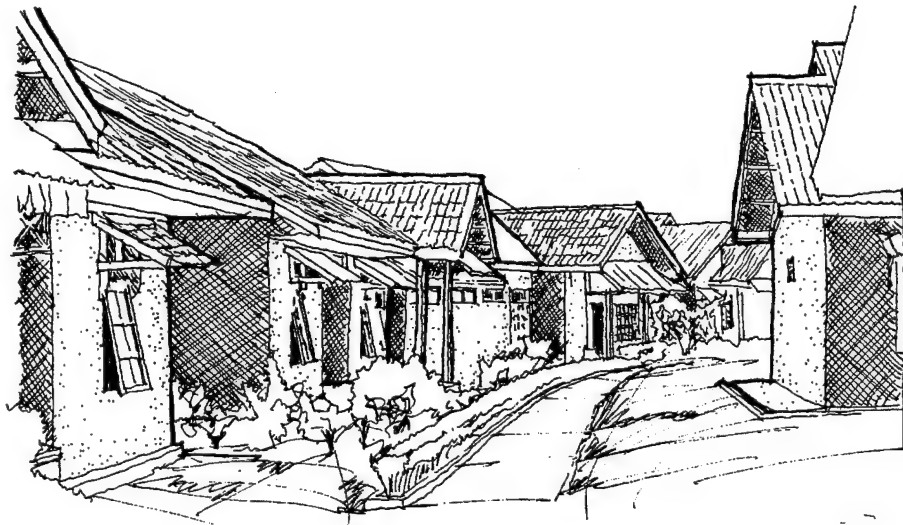


Also, the open area sets up a thermal convection cycle in which air is heated by the sun and, as it rises, cool air is pulled into the space from the jungle understory. This creates a cooling breeze.

3. Subtle Angles. The layout of buildings does not follow rigid lines. Rather, buildings are angled in response to site-specific circumstances like topography, wind patterns, or orientation to public space. Another reason for these subtle angles may be found in the belief among many Southeast Asian people that evil spirits move in a straight line.²⁵



Fig. 20: An orphanage in Samarinda maintains the tradition of subtle angles.



INTERWEAVING

4. Hierarchy of Use. There is a hierarchy in building placement that corresponds to use and social status of the owner or occupant. Public buildings are in prominent locations, some may even have their own street plaza, and service buildings are relegated to secondary pathways. In some cases, less affluent villagers live on lots that are one row off of the main street.

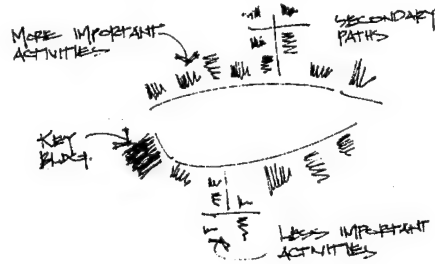
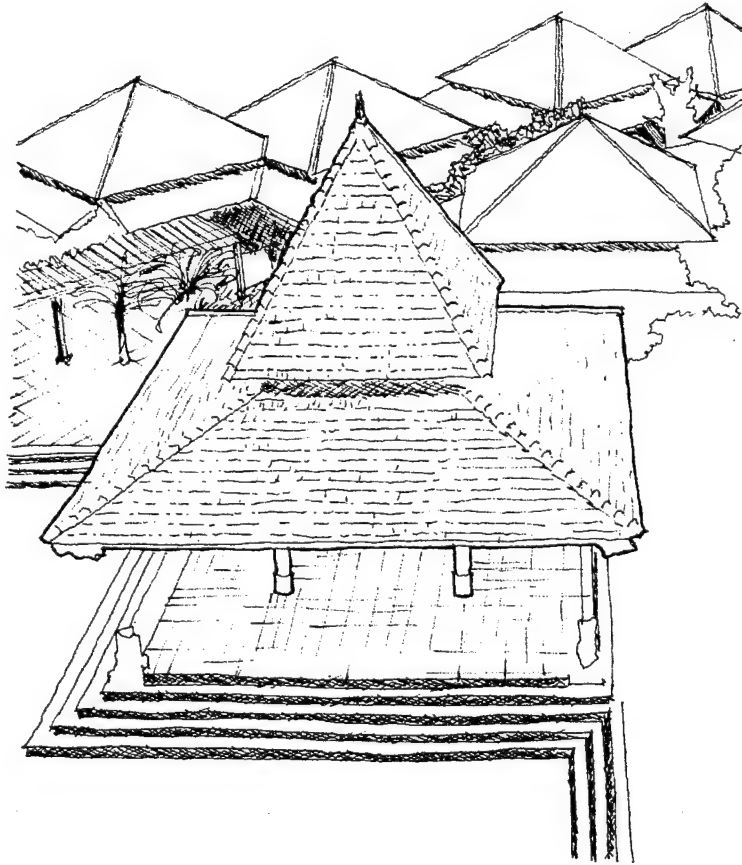


Fig. 21: This image is of Citra Niaga, an urban development project in Samarinda that won an Aga Khan Award for Architecture in 1989. The main pavilion, shown here, commands the most prominent location on the site. Next to the main pedestrian street are the more permanent shops and the outlying spaces are reserved for street hawkers' stalls.



5. Variable Separation. Although close together, the majority of dwellings along a street are almost always separated by a variable distance that ranges from two meters to five meters. The variations allow for minor adjustments to environmental factors like topography, wind, and light. Usually, the space functions as a service/storage area.

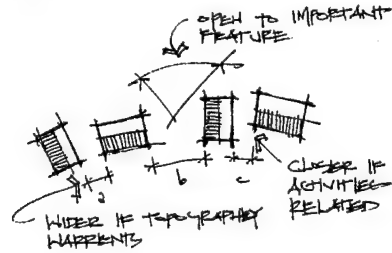
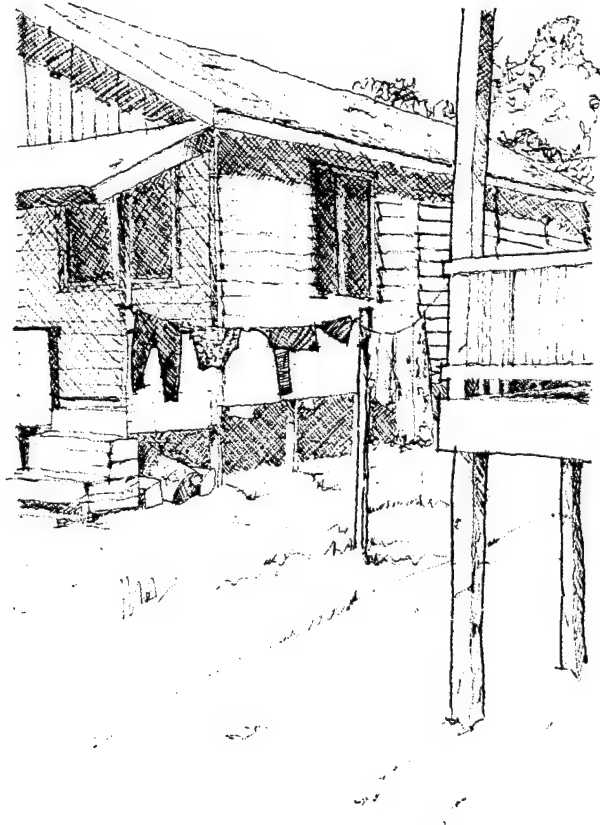


Fig. 22: These two homes in Pepa Baru are separated by about three meters and the resulting space is used as a service area.



6. Visual Terminations. When looking down a pedestrian street or plaza, the view corridor is almost always terminated by buildings. Rarely do streets visually bleed into the jungle. I was told that this is due to the sense of protection that the visual enclosure created.

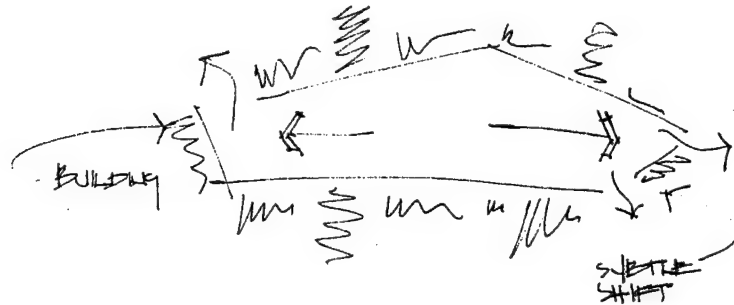


Fig. 23: Even in large, planned open spaces, like the plaza at Pepa Baru, buildings are placed at the ends of each axis to terminate the view and provide a sense of protection from the surrounding jungle.



7. Layered Access. Despite the fact that most buildings are set along the street edge, there are layers that separate the public realm of the street from the private realm of the building. These include stoops, steps, porches, and broad overhangs. These layers become places in their own right and accommodate a varying degree of interaction between public and private.²⁶

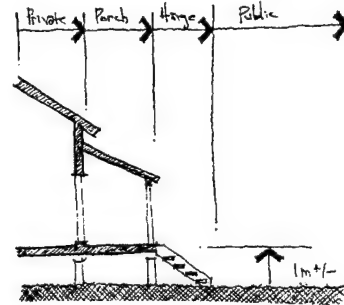
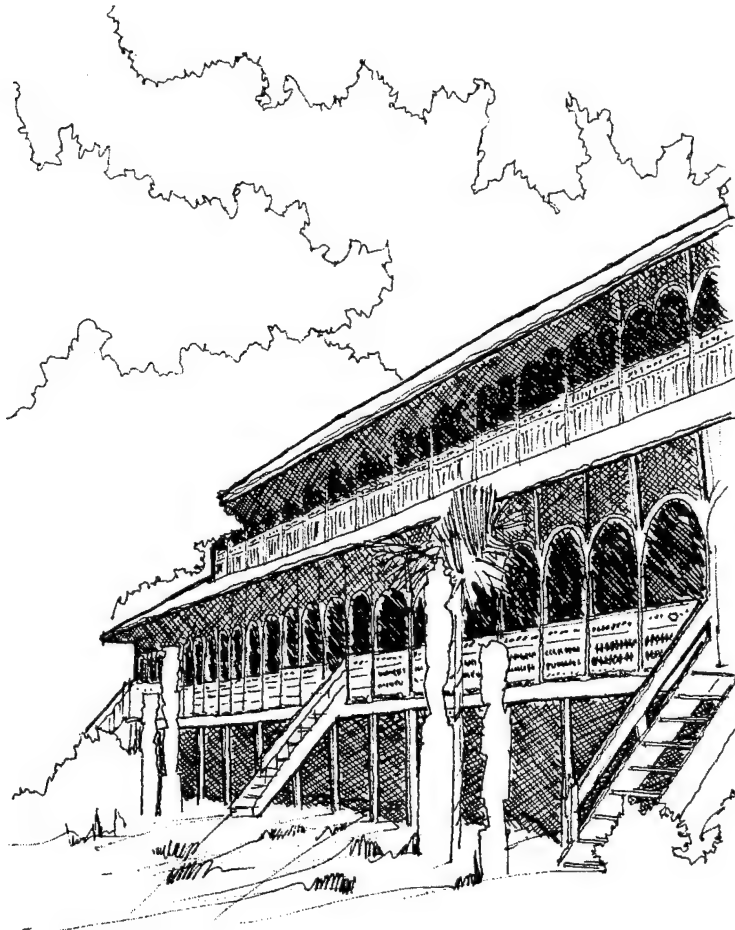


Fig. 24: The access into this typical Dyak longhouse passes through a series of layers: street, steps, porch, and public room (after Dawson and Gillow, 1994).

"To expand the public realm and enrich the private realm...conceive of buildings as urban design problems (that) resurrect the habits of urban life -- of informal interaction and face-to-face communication that have been lost in the modern city." [27]

Thomas Fisher



8. On-Street Porches. Porches are very common elements of traditional buildings for a wide range of reasons. They provide a well ventilated and shaded gathering place near the public street. They help establish transition zones from public to private realms. And they help shade the vertical surfaces of the buildings.

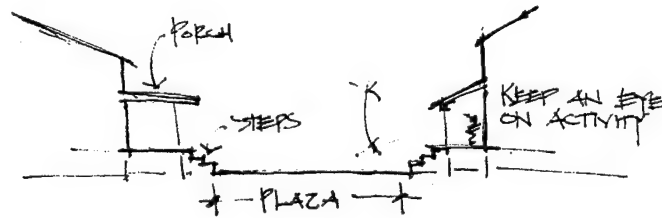


Fig. 25: The porches on these house are typical examples in that they are located adjacent to the street but elevated enough to give some privacy. These porches fit Rapoport's assertion that a porch provides "...sitting and sleeping space intermediate between outdoors and indoors even when it rains, shades the walls and windows, and provides the possibility of continuing the ventilation of the house during violent rains." [28]



9. Multi-Use Places. Pedestrian streets serve more than circulation needs. They accommodate a wide-range of activities because, in many cases, they are the only cleared and leveled area in a village.

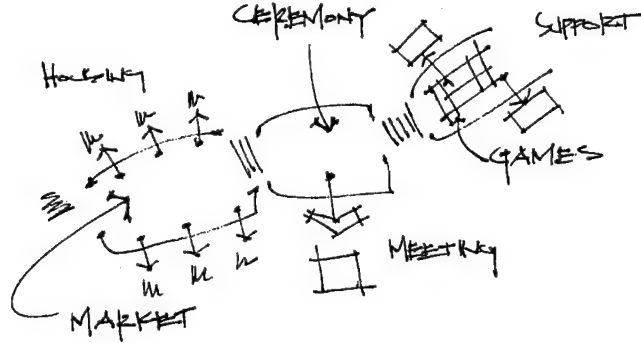
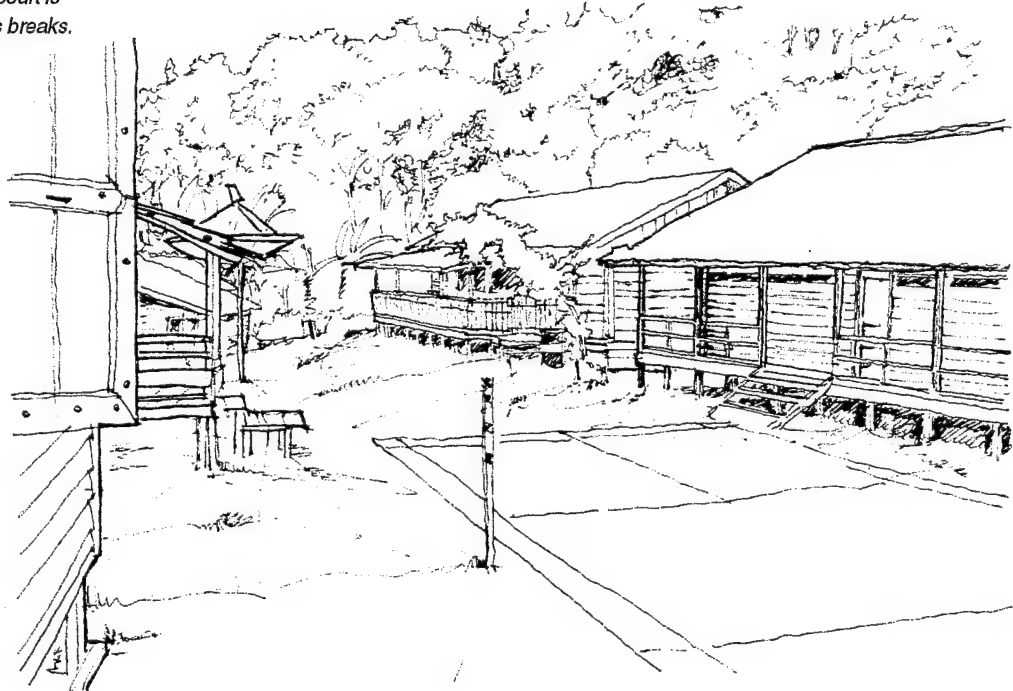


Fig. 26: This small pedestrian street also supports a badminton court. The placement of the court is deliberate because the village school faces this street (building on right) and the court is used during class breaks.



10. Entry Gate. The elaborate entry gate is one of the most common elements in Kalimantan villages. Even in the cities, similar gates are placed at entrances to residential and commercial developments. While a welcoming gesture, the gate also clearly defines the village entry.

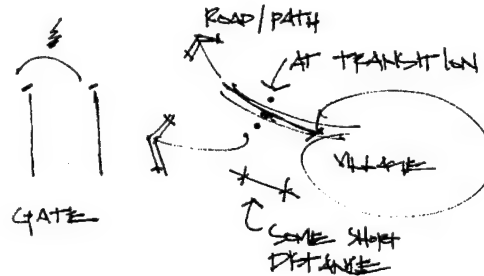
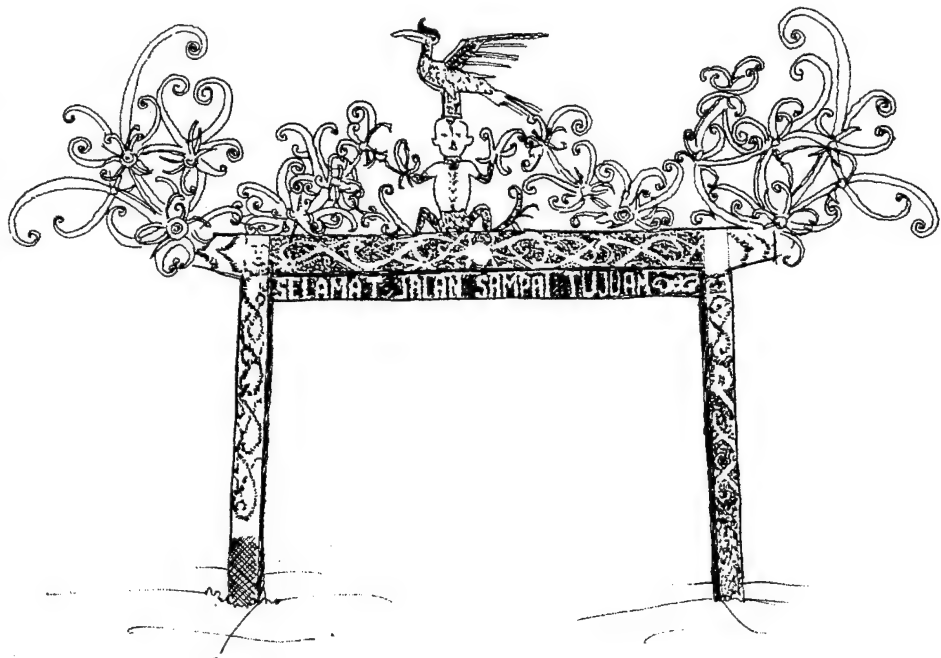


Fig. 27: The entry gate to Long Sule is placed just outside a cluster of buildings along the main path into the village. The elaborate curvilinear design symbolizes the interconnectedness of the Indonesian people.

"Any part of a town - large or small - which is to be identified by its inhabitants as a precinct of some kind, will be reinforced, helped in its distinctness, marked, and made more vivid, if the paths which enter it are marked by gateways where they cross the boundary." [29]

Christopher Alexander,
et. al.



LESSONS FROM KALIMANTAN BUILDINGS

The previous ten principles apply to the broader category of design I call village planning. In general, these principles influence the organization of public space, and the interaction between public and private space. A similar study of principles that apply to Kalimantan buildings is equally important to the development of this thesis. As was the case for the village planning principles, I derived most of the building design principles from my survey of buildings in Long Sule and Pepa Baru. Occasionally, I include illustrations from other areas as long as these examples support the general principle.

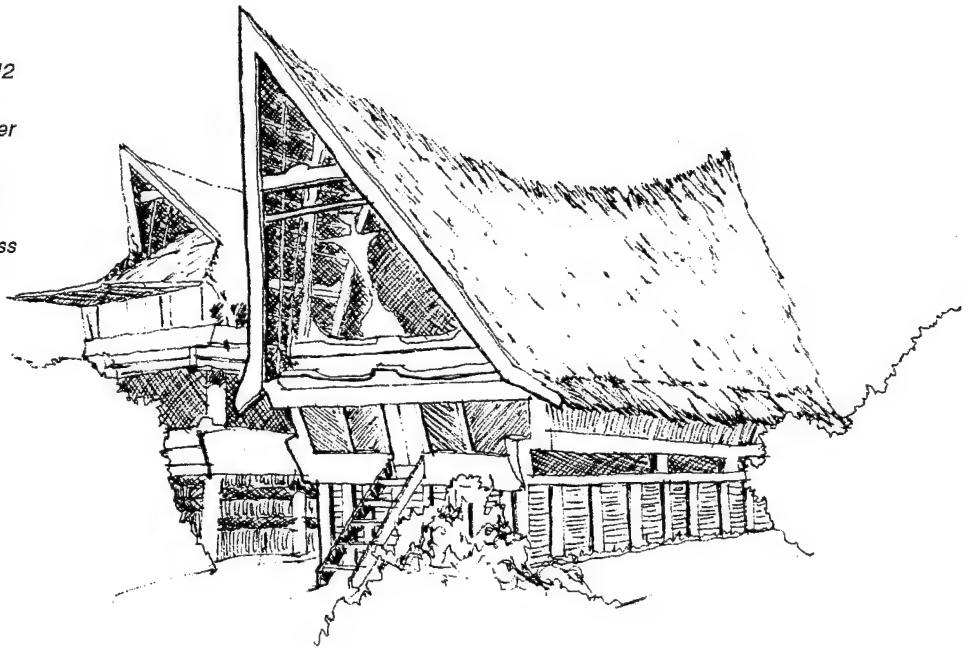
Introducing a Key Principle. While the eleven building design principles all impact the character of the regional architecture, there is one principle that I think is paramount -- the dominant roof. The essence of an Indonesian building is the roof - in the way it influences wind patterns, in the way it sheds water, and in the way it protects people from the high and hot tropical sun.³⁰ Bawa believes that "One unchanging element of all buildings is the roof -- protective, emphatic, and all important..."³¹ Studies have shown that the roof is an important symbol - the sloped roof is found to be the element most closely associated with the symbol of shelter and security.³² As Beng points out, the roof is the major element of Southeast Asian architectural compositions perhaps because it acts as the main protective device sheltering the places underneath from forces of nature.³³ To achieve this level of importance, the roof must be visible. Flat roofs and hidden roofs do not meet our psychological need for the roof to be visible as a strong element in its own right. In an essay on sheltering roofs, Alexander reinforces the importance of visibility, "Seen from afar, the roof of the building must be made to form a massive part of the building. This is perhaps the most dramatic feature of a strong, sheltering roof."³⁴ Moreover, flat roofs, and even some shed roofs, are rarely used in Kalimantan, if only because of their climatic inappropriateness. Across Indonesia, from the saddle-backed roofs of the Torajan to the massive roofs of traditional homes on the Nias islands, the most dramatic roofs are variations on a simple theme. The underlying structure is a basic gable. Lyndon and Moore offer an explanation for this occurrence, "The gable roof, with its peak along the spine is so generic that it is found in all cultures that build with wood. Its shape is inherent to the process of building with pieces of wood sloping toward each other for mutual support to span a roof."³⁵ Roof forms create places in one sense and in another sense these forms help to anchor an architecture of place -- an architecture rooted in its context, site, history, and culture. An understanding of the principle of dominant roofs can help practicing architects interested in making places that resonate with our physical and emotional needs.

11. Dominant Roof. Roof forms serve a myriad of purposes. They protect the occupants physically by blocking solar radiation and shedding rain water. They nurture the occupants psychologically by encompassing space. And they respond to cultural imperatives as an element that mediates with the heavens. According to Krier, "The roof is the crown of the building, the evidence of its meaning showing the pride and dignity of the building itself."³⁶



Fig. 28: The upswept gable roof of the Toba Batak people dominates the rest of the structure (after Dawson and Gillow, 1994).

Roof pitches are typically steep and vary from a rise:run ratio of 5:12 to 14:12 and steeper. Thatch roofs are usually quite steep (over 8:12) but shingle roofs can be less than that. The gap between material overlaps influences the form with less watertight construction requiring a steeper pitch. Secondary spaces have shallower roofs (3:12 to 5:12).



12. Additive Forms. Just as villages develop over time, vernacular buildings also grow over time. They are added on to as resources permit. What starts out as a basic unit changes over time with the addition of a porch, a kitchen, or a new bedroom.

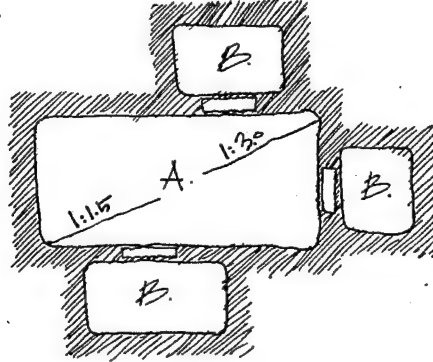
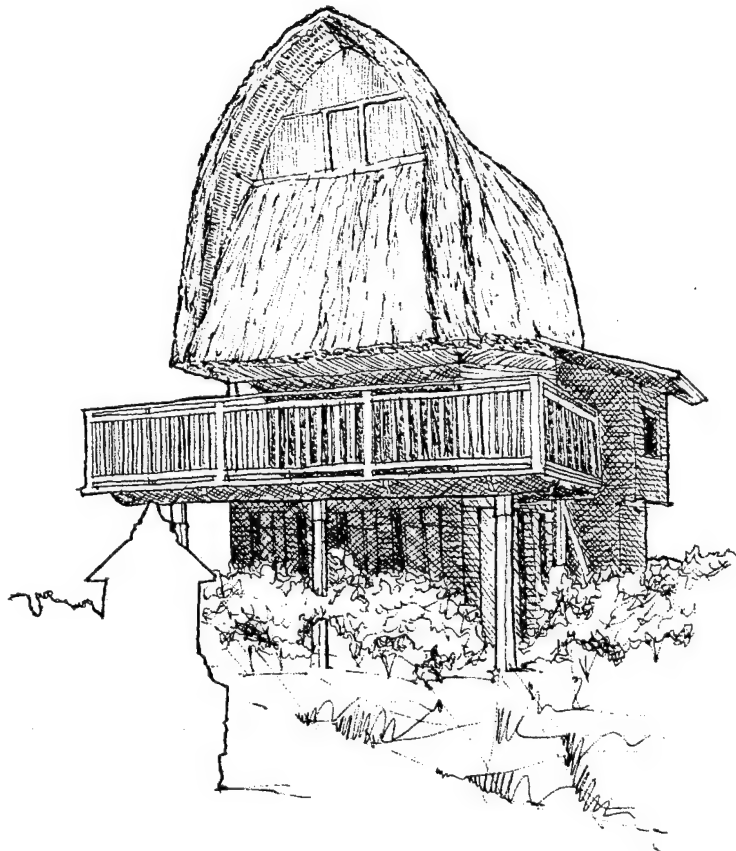


Fig. 29: This home, based on traditional rice barns, illustrates the principle of additive form. The main volume is clearly superior in size and importance and the additive elements (bathroom on the right, porch in front) play a supporting role (after Beng, 1994a).

The basic rectangular shape of the main unit is climate driven. In hot-humid climates, the optimum plan is rectangular with width to length proportions of 1:1.5 to 1:3. [37] This shape balances the need for maximum cross-ventilation and minimum wall exposure.



13. Three-Part Structure. Nearly all traditional buildings in Kalimantan consist of three parts: an elevated base, a living volume, and a roof. These three parts correspond symbolically to the strong cosmological and religious beliefs in Kalimantan. The base represents the underworld, the mid-section is seen as the land humans occupy, and the roof represents heaven.³⁸

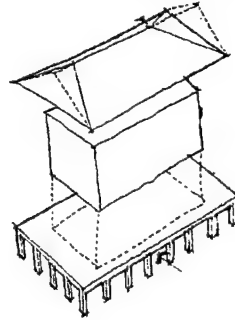
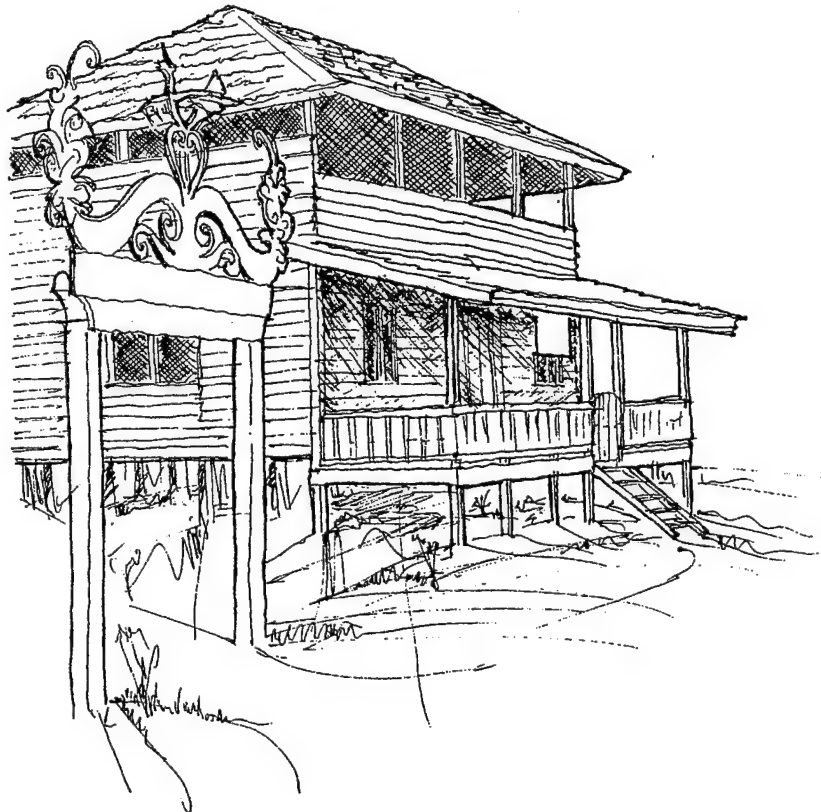


Fig. 30: The typical Kalimantan building consists of three parts: base, middle, and top. These divisions correspond symbolically to religious beliefs.



14. Elevated Base. Although symbolically associated with the underworld, the space under the elevated base is still quite functional, and, when there is enough headroom, the space becomes useful, especially during periods of rain or intense sunshine. There is a climatic benefit as well to this principle. "Plant cover on the ground tends to create a steeper wind gradient than an open surface, i.e. it restricts the movement of air near the ground, and it is often necessary to elevate the building on stilts, thereby avoiding the stagnant or slowly moving air at the ground surface."³⁹

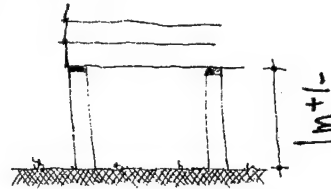
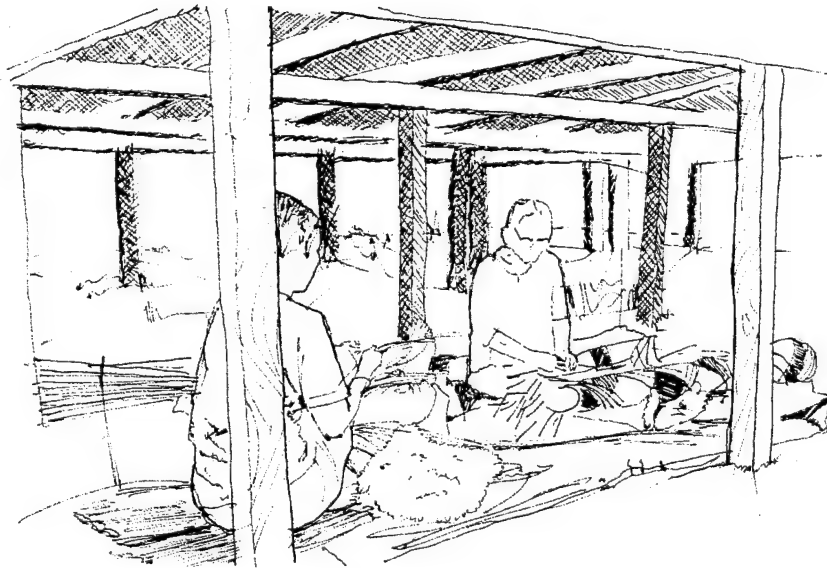


Fig. 31. When the base is elevated at least one meter, a usable space is created that, as shown here, can become a pleasant place to gather or work.

Even when there is not enough headroom, the elevated base reduces the buildings impact on the topography, lifts the living area above the flood plain, and cools the floor above by allowing breezes to flow underneath.

Sudradjat notes that rectangular houses elevated on stilts represent the majority condition in Indonesia [40].



15. Exposed Structure. The traditional Kalimantan construction method utilizes an un-engineered, post-and-beam system. Native hardwoods like Ironwood and Kapur are popular for structural use because of their longevity (up to 150 years) due to strong resistance to insects and moisture. While rough, the structure, exposed on the interior, reflects an honesty about material and craft. Connections are typically mortise-and-tenon joints or simply lashed together with a strong cord.

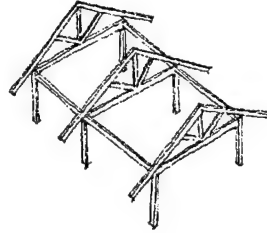


Fig. 32: This interior view of a traditional Dyak longhouse reveals the imprecise, yet attractive quality of the exposed structural system (after Dawson and Gillow, 1994).



16. Solid-Void. Surprisingly, most buildings in the survey villages have a solid-void ratio of only 15 to 20%. The interiors are dark and hot throughout the day. But, "Unlike its Western counterpart, Indonesian domestic architecture does not aim to provide comfortable living space. The Indonesian home is a place for sleeping in, as most of the day will be spent out of doors."⁴¹

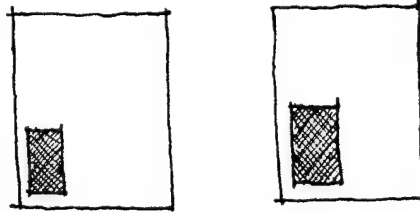


Fig. 33: This home in Long Sule exhibits the typically low percentage of open areas to solid walls. Given the unique nature of the program for the youth center, this is obviously an issue that will have to be addressed in a more appropriate manner.



17. Exterior Skin. Wrapping the structure of most traditional buildings, much like human skin, is a layer of lapped siding. Since walls are usually not load-bearing, this skin may take the form of interwoven bamboo panels or horizontal siding boards of ironwood or a protected softwood. The roofs are sheathed with ironwood shingles (traditional method), or more commonly with zinc panels or asbestos/cement tiles. In all cases, the pieces are small and easily maneuvered, and the tolerances are great.

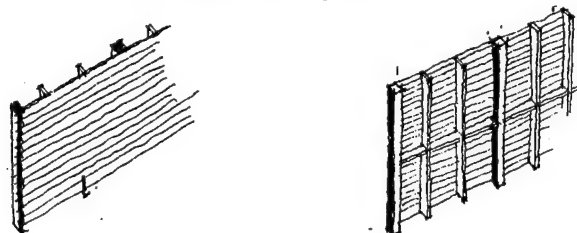
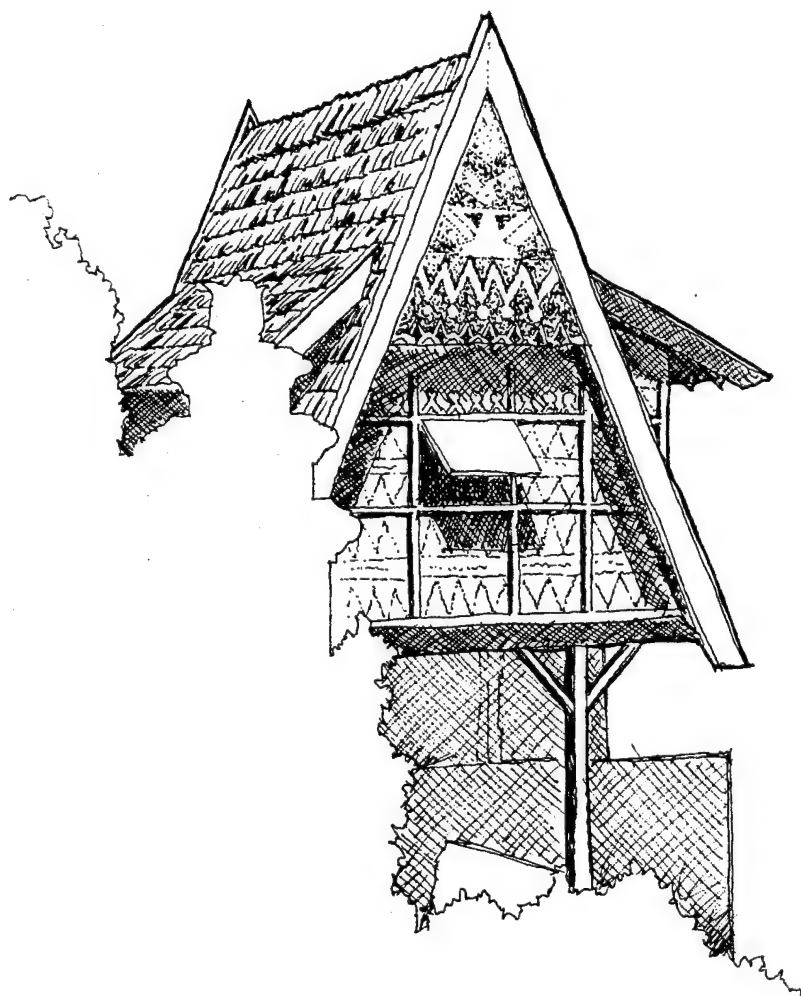


Fig. 34: The buildings at Kampung Kali Cho-de in Yogyakarta have exterior skins of woven bamboo and roofs of hardwood shingles or zinc panels. The patterns on the bamboo facade were painted on with the help of local art students (after Steele, 1992).



18. Zones of Privacy. There is a clear progression from public to private in most traditional Kalimantan dwellings -- but not in the Western sense.⁴² The public zones (living areas) are adjacent to the on-street porch or stoop and the private zones like the kitchen, dining area, and toilet are set furthest away from the street, hidden from public view. Bedrooms occupy the in-between zones and become public rooms if the weather turns bad when the entire family retreats to the house.

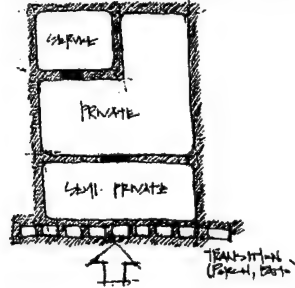
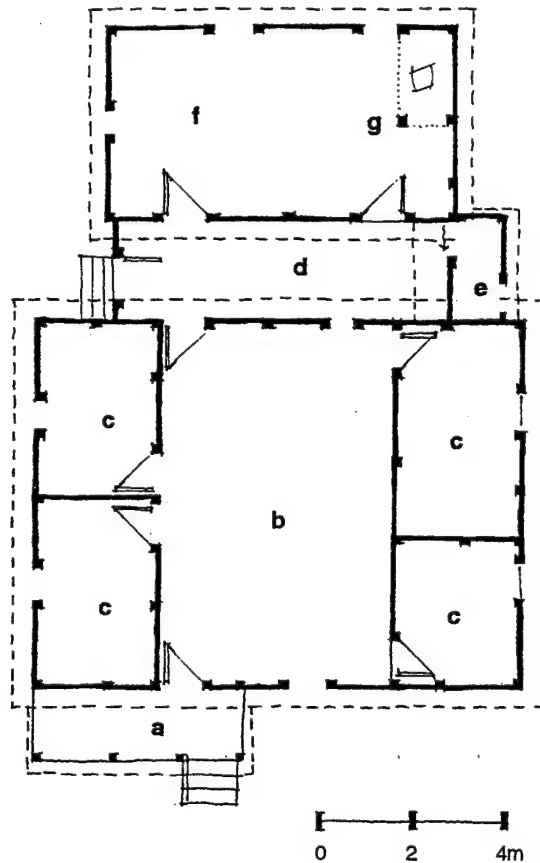


Fig. 35: A typical village house with increasing zones of privacy.

- a. porch
- b. gathering room
- c. bedroom
- d. wet area (sinks)
- e. toilet
- f. dining area
- h. kitchen



19. Ambiguous Edge. While not common in the villages I surveyed, in more contemporary buildings with occupancies greater than one or two families, or in buildings that are used throughout the day, the edges become more ambiguous. The skin is peeled away and more of the interior is exposed. Beng states that "The tropical house can be seen in the broad verandahs (and) the fluid interaction between inside and outside."⁴³ Increasingly, this is the case, but it was not this way in the recent past.

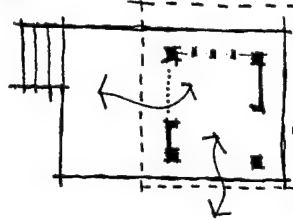


Fig 36: At a new hotel in Samarinda, the edges are no longer wrapped in a tight skin. The edges and walls are opened and allow light and air to move in and through the interior spaces.



20. Transitioning from light to dark. One of the problems encountered in equatorial zones is the intensely bright, milky sky. In addition to blocking direct light, the indirect light from the sky must also be tempered in order to minimize glare. This is done through porches, broad overhangs that block much of the sky, and detailed tracery above windows and doors.

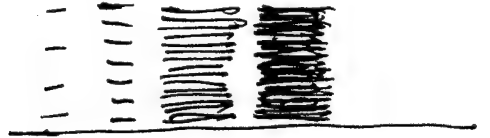
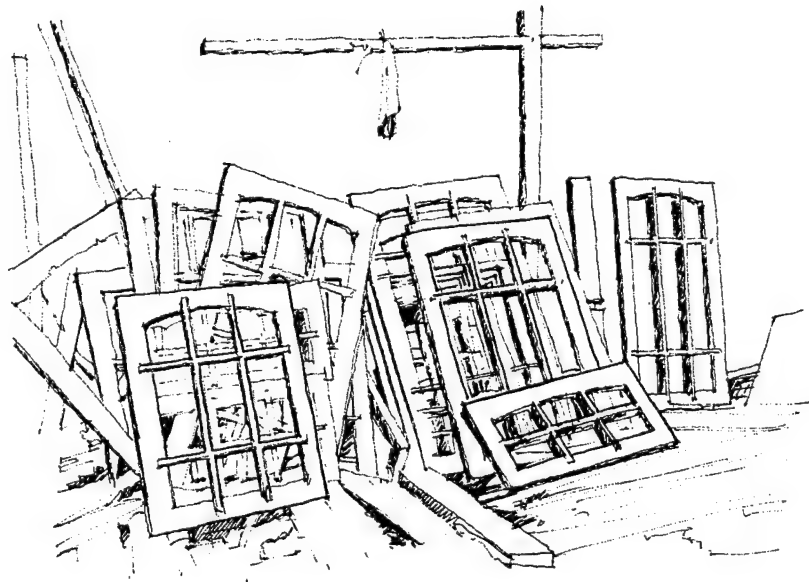


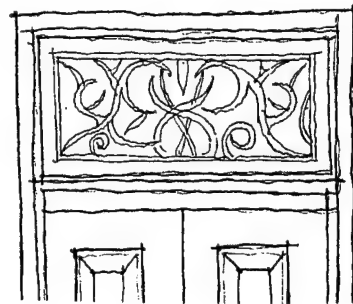
Fig. 37: Traditional windows, with and without glazing, have numerous panes that help filter the incoming light. To help even more, operable shutters may be installed. The goal is to filter the intense light, not to block it completely.

"Light is the most changing natural phenomenon and it intimately connects us to the temporal rhythms of nature. When admitted through openings in a building, light assumes the added purpose of revealing the ever changing experience of interior form" [44].

Edward Mazria

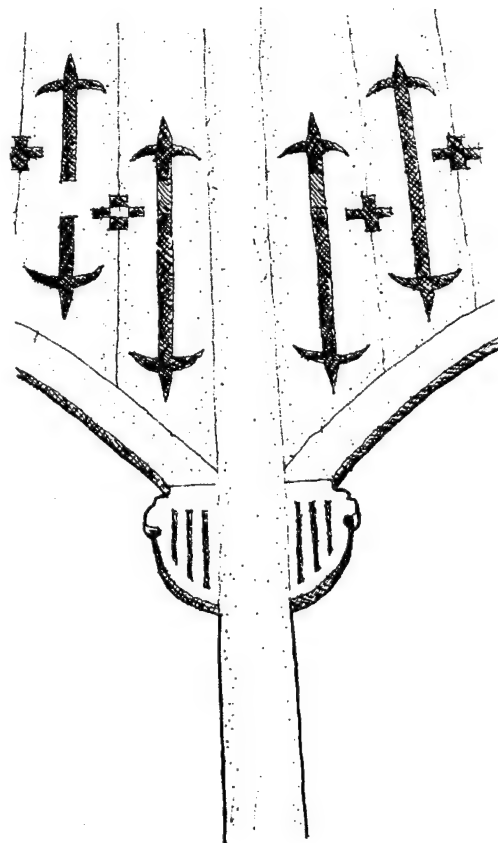


21. Ornament. With the exception of the elaborate entry gates, some minor painting, and carved wood detailing, ornamentation on Kalimantan structures is minimal. Dawson and Gillow also found that "Many traditional Indonesian houses are left unadorned, relying for their undoubted beauty upon the natural coloring of the woods and thatching materials."⁴⁵



MAKELANT
PEAKS OF
WINDOWS

Fig. 38: A carved wood decoration on a Dyak longhouse also acts to filter the light as it moves into the building.



CONCLUSIONS

These lessons from Kalimantan villages and buildings are clearly not stylistic prescriptions; rather they are generating principles that can inform a contemporary architecture while at the same time anchor that architecture in the *adat* or building language of the local culture. Looking back, I can easily conclude that the last-minute visit to Long Sule and Pepa Baru was essential to the development of this thesis.

In responding to the three questions posed by Helmy that I presented at the beginning of this chapter, I believe this chapter answers the first two. For this thesis, these 21 principles constitute the pool of "potential principles."⁴⁶ Moreover, in that I went through a culling process and discarded those that were not generalizable, the ones illustrated are those that are most relevant to realize cultural and temporal continuity. By understanding how and why each principle was generated, tradition does become a resource for linking built form to cultural roots. The final step is to develop a strategy for transforming these principles into ones that are appropriate for the current situation. And this is the purpose for Part Three of this thesis, **Transforming**.

PART THREE

TRANSFORMING

Critical thought...is occasionally more like a coiled spring than a circle, it comes almost, but not quite, back to a place it has been before, but it is the "not quite," the difference, that gives it resiliency, strength, and a future. Great works...seem naturally to produce these unending, near-cycles of strong thought. They produce, for each of us, the possibility of saying something entirely new while speaking of something quite old in a language that our predecessors seem to have been almost ready to use.

R.C. Murfin

CHAPTER SIX

THEORIES ON TRANSFORMATION

At the last programming workshop I held in Kalimantan, the *Yayasan* clarified for me one of the initial design goals, and, in the process, added another goal to the list. Prior to this last workshop, the *Yayasan* decided that the project should reflect a uniquely Kalimantan style. I was a little uneasy about what that meant and I felt uncomfortable about adapting wholesale a "style" I knew little about. Fortunately, at this last workshop, Ellia announced that, after careful consideration, the *Yayasan* decided, since I am the project's architect and since I am American, the project should reflect this and be "part American." In essence, the *Yayasan* gave me the freedom to transform their local architectural language into a form appropriate for the place and time. It is this transformation of the vernacular, which I am responsible for, that I believe makes the project part Kalimantan and part American.

TRANSFORMING: A VITAL THREAD

As an additional thread to be used in the process of interweaving, the act of transforming is closely tied to the previously discussed concepts of identifying and anchoring. When architects enter into a cross-cultural dialogue, the resulting design is bound to be something original. Nevertheless, as Abel notes, "The creation of new models of architecture arises, not off any 'clean-sheet,' but out of a cross-pollination between existing but previously unrelated ideas and forms, a process...which is often stimulated by exchanges between different cultures." ¹This transformational process is also facilitated by working in a participatory mode. According to Watson, such a mode of operation is responsible for renewing traditional forms from within through the "process of continuous adaptation."² In terms of anchoring, understanding both the local building culture and the requirements of the place is a critical first step. But as Serageldin states, "The issue is not whether the structure conforms exactly to the criteria of the past; it clearly cannot do so and remain relevant to today's

INTERWEAVING

concerns. Instead, the issue is whether the designer has learned the lessons of the past, internalized them, and used them as an input, although partial, in defining the solution to a contemporary problem for contemporary clients."³ In translating and reading poetry, a similar process is employed. During each translation or reading, the existing text is transformed into something new that is anchored in the original text but that is also informed by the contemporary condition. In his commentary accompanying *Nineteen Ways of Looking at Wang Wei*, Weinberger states:

The point is that translation is more than a leap from dictionary to dictionary; it is a reimagining of the poem. As such, every reading of every poem, regardless of language, is an act of translation: translation into the reader's intellectual and emotional life. As no individual reader remains the same, each reading becomes a different, not merely another, reading. The same poem cannot be read twice.⁴

In this thesis, I have been acting as a translator. Given my experiences and knowledge, I am creating something new out of the needs that we identified together and out of a building tradition that gives valuable lessons for today.

REASONS FOR TRANSFORMING

In chapter five of this thesis, I presented my study of some of the vernacular architecture found in the region. The principles gleaned from that investigation were valuable in that they provided insight into the building language of the area. However, while important in terms of establishing a conceptual foundation, vernacular architecture or as Rudofsky calls it "architecture without architects" cannot provide the ultimate solution to many of today's challenging building programs. The lessons learned from the vernacular should be integrated into a new design vocabulary that is consistent with a society's building traditions and culture, and that is appropriate for the current circumstances. As Ozkan states, "The relevant guidance of vernacular architecture is limited, unless a reinterpretation is made or what has existed is stretched."⁵ Architects working within a rich building tradition, as was the case for this project, should seek to integrate and transform the lessons from the vernacular for several reasons.

Changing Cultural Conditions. Above all, the conditions that drove the vernacular response most likely do not exist today. While some lessons may be easily transferable, others may not be appropriate in the current cultural atmosphere. For instance, for this thesis, the idea of incorporating an elevated base is still appropriate both culturally and climatically. However, the use of ceremonial bones for marking entrances was appropriate for a particular time and

set of religious beliefs but is not relevant for this project. As cultural conditions change, the built form that responds to those cultural processes must change as well. Also, as Curtis notes, architects must "...acknowledge that conditions alter drastically and that the present world is one of increasing interchange and interdependence."⁶ This thesis is a prime example of such an interchange, and my knowledge will clearly affect the final outcome. In Indonesia, there is a long history of architectural transformations. A former architecture professor in Indonesia, W. Lemei, warned that architectural traditions should not be followed blindly, "...but be subject to strong renewal because in the course of time the inner life of people [evolves], and, within the framework of specific Indonesian character, this process will eventually lead to a renewal of form."⁷

Transformations of vernacular architecture in Indonesia were also due in part to imperialism and nationalism. The former adapted the vernacular architecture to Dutch tastes and the latter nearly abandoned regionally sensitive architecture in favor of a modernist ethos that signified the new nation's entry into the modern world. In both cases, the transformations responded to political and social forces beyond the realm of architecture. Likewise, the *Yayasan's* request for a Kalimantan style is largely due to a desire to return to local roots in the face of global homogenization. Yet their willingness to give me freedom in making the project "part American" can be seen as partly a political act of repayment for the work I volunteered to perform.

Particularity of the Circumstance. In addition to changing cultural conditions, architecture must be transformed from vernacular examples because the specific requirements of the project at hand are always unique. Correa believes architects must refer to precedents, but to create an architecture relevant for its place, its climate, and its time those precedents must be reinvented.⁸ The precedents and later modifications become models, according to Abel, that can be transformed to fit "the particular circumstances of place, programme, and history."⁹ For architects working in Indonesia, the challenge is regaining access to the local building traditions while simultaneously formulating an architectural language which is suitable to deal with contemporary realities. Two of the realities influencing the design of this youth center are the challenging site and the unique program. In both cases, the lessons from precedent can only be taken so far before they must be transformed into more fitting models.

Continuity with Past Successes. Transformation implies that there is a base upon which change can occur. The value of utilizing such a base is that past successes can be incorporated into present design and previous missteps

can be avoided. Also, "Replication of previous models provides designers with those essential elements of continuity through change by which cultures measure their lineage."¹⁰ Learning from previous models actually enhances, rather than limits, innovation. As Vitzthum notes, innovation means more than introducing something new because it derives from "innovare," to **renew**.¹¹ In fact, the view that "...new is better, prevalent in modern design, eliminates the possibility of using cumulative building knowledge and produces results lacking the substantive quality often found in traditional architecture."¹² By taking lessons from vernacular architecture, which is typically rural, and adapting those lessons to the requirements of the youth center, which is designed to serve urban youth, a link can be re-established between past and present. As AlSayyad and Bourdier note, "...rural infiltration helps retain tradition in the more complex and modernized fabric of urban areas."¹³

MODES OF TRANSFORMATION

When working to integrate lessons from local or regional architecture into models appropriate for current conditions, architects must decide at what level the changes will occur. Similar to the scale of participation discussed in chapter two, there is a continuum of interpretation on which architects place themselves (fig. 39).



Fig. 39: Architects working within a vernacular language should place themselves philosophically on a continuum of transformation that ranges from direct interpretation of vernacular models to transformation of those models into abstract principles that can be applied later in the design process.

At one end of the scale is reiteration. This is like the concept of concrete regionalism identified by Ozkan where all approaches to utilizing localized expression are acceptable even though they may copy local features, elements, or even entire buildings.¹⁴ In this stage, Bower claims that the vernacular models are rigid and cannot be changed and as a result eclecticism and copying are unavoidable.¹⁵ The benefit to forms created at this stage is the visual continuity with traditional architecture but the significant liability is that new forms based on simple reiteration contribute little to cultural renewal.¹⁶ Many new resorts under construction in Southeast Asia employ reiteration as a design methodology.

Transformation, which is at the opposite end of the spectrum, utilizes general principles derived from the vernacular and applied in a manner appropriate to the contemporary condition. At this stage, elemental qualities abstracted from past examples are incorporated into the new form. Examples of such qualities include massing, proportions, solid-void, use of light, and use of structure.¹⁷ To make these transformations, Helmy offers some sound advice:

The most promising interpretation seems to come from the morphological stage. It is, in my view, the real formative stage which simultaneously embodies two criteria; that of being a semantic structure and at the same time syntactically flexible enough to acquire new interpretations and accept formal transformation of a contemporary nature. Forms produced at this stage onwards would exhibit, at least potentially, cultural continuity and contemporaneity.¹⁸

The concept of transformation is applied to Indonesia by Sudradjat. He suggests that "The way forward seems to lie in a sort of abstraction of indigenous spatial patterns, types, and morphologies, and a mating of these principles with essential concepts of modern design."¹⁹

Reiteration and transformation, however, are not mutually exclusive. As Abel suggests, each approach "... must rely to some extent on the other, but the differences between them are significant enough to suggest a wide range of alternative strategies...."²⁰ For this thesis, I believe subtle transformations to the local architectural language are appropriate. These transformations are based on the principles derived from the study of the vernacular and are renewed in a manner appropriate for the specific site, program, and client. Yet, even within this project, the degree of transformation varies dramatically. For example, the staff houses, which function in much the same way as traditional houses in Long Sule and Pepa Baru, are closer to reiterations than transformations. But, buildings with modern programs like the dining hall or canteen are clearly different and are based more on general principles than on past forms. In terms of contemporary architectural theory, the difference between the staff houses and the dining hall is analogous to the difference between regionalism and critical regionalism--differences that I will discuss in the following sections. Despite their differences, in this project, there was a need to employ aspects of both theories.

Regionalism. Because geographical regions influence the development of societies both culturally and environmentally,²¹ adapting architecture to its region is a valid methodology. The theory underpinning such an adaptation is known as *regionalism* and can be defined "...as a self-conscious commitment to uncover a particular tradition's unique response to place and culture."²² Ozkan is correct in believing that, at its core, regionalism shows respect to the local climate, culture, and technology.²³ Regionalism evolved as a reaction against modernism and the placeless buildings that resulted from the modernist ideology. It is an appealing philosophy in developing countries according to Abel, "...where the effects of modernism's break with the past have been

compounded by a drastically speeded-up rate of development.”²⁴ My experience in Indonesia, where the *Yayasan* clearly wanted to maintain their region’s identity through the use of a Kalimantan style, supports Abel’s claim that a search for identity through architecture “...acquires political and emotional dimensions that smack of a basic struggle for cultural survival.”²⁵ In its most basic manifestation, regionalism is, in Fida Ali’s words, no more than a “...common sense response to regional factors,”²⁶ and because of this, architects operating in this mode may be accused of being too practical.²⁷ Another criticism of the regionalist approach is that it is simply a nostalgic re-enactment of vernacular style. But as Beng points out, regionalism in Southeast Asia is a synthesis of the vernacular with the modern and “It is a way of thinking about architecture that is culturally regenerative--not a style, but a search for cultural continuity in the aftermath of the colonial experience.”²⁸ Despite these criticisms, as an architectural approach, regionalism may be the only alternative in many areas simply because local circumstances cannot be ignored and the alternative is out of reach economically. Ara Hassan believes that architects practicing in most developing countries cannot build with imported materials, and they cannot ignore the weather, so, he asks, “How can these architects produce an architecture that is not regional?”²⁹ I found Ara Hassan’s question very appropriate. Without the resources to import materials or energy-consuming technologies, this thesis project required a study in regionalism. But this does not mean that the local precedents cannot be looked upon with a critical eye. Ideally, architects bring with them the ability to examine critically what has been done before and to learn from that examination and to integrate or abandon lessons from the past as necessary. In a way, this is true critical regionalism.

Critical Regionalism. Critical regionalism, popularized by Kenneth Frampton in the late 1980s, is a theory about understanding a region while at the same time bringing to that region architecture in tune with the modern world. Moreover, “the fundamental strategy of critical regionalism,” Frampton says, “is to mediate the impact of universal civilization with elements derived *indirectly* from the peculiarities of a particular place.”³⁰ And as Fisher notes, such an architecture “...must be, at once, of its time and critical of its time.”³¹ To accomplish these objectives, architecture of critical regionalism, according to Frampton, must assume an *arrière-garde* position or “...one which distances itself equally from the Enlightenment myth of progress and from a reactionary, unrealistic impulse to return to the architectonic forms of the pre-industrial past.”³² To do this, such an architecture of resistance may be inspired by the site’s topography, the quality of the local light, or the structural tectonic of the region.³³ At some level, the concept of critical regionalism is appropriate to

invoke for this thesis because, through this project, I am trying to anchor the architecture in the requirements of the place rather than in the universal language of modernism. Also, by critically examining principles derived from the vernacular and utilizing only those principles that are still appropriate, I am attempting to avoid the tendency to resort to a glib historicism. Frampton's notion, however, of developing architecture indirectly from the place is too superficial. In his definition, architects are given too much latitude to incorporate ideas from outside the region. Many of the examples Frampton uses to illustrate his version of critical regionalism are more on the order of good modernist buildings rather than regionally sensitive ones. I want to go beyond integrating abstract issues of light or topography in this thesis project; after all, most good architects do this regardless of their attitude towards the region. My goal is to create an architecture deeply rooted in the building language of the place but transformed in a way supportive of the current requirements.

A STRATEGY FOR TRANSFORMATION

While not all-inclusive, given the constraints of time and resources, the principles identified in chapter five have been sufficient to give me a better understanding of the region's building language. With this understanding, I can begin to create my own architectural narrative using the structure and vocabulary of the region. By using principles rather than styles, I am attempting to uncover general concepts, not specific solutions. These concepts can then be used in the final design of the youth center in a way that integrates such a design into the daily lives of the people being served. Prior to applying lessons learned from the vernacular, the strategy I followed consisted of two stages: recognizing principles, and modifying principles.

Recognizing Principles. As I discussed in chapter five, the first step is to recognize the underlying principles in use in a given region. Designers must ask themselves questions like, "Why is this solution used?", "How is it implemented?", "What is its underlying, essential structure that is transferable?", "Is it appropriate for today?" Rather than continually focusing on what is different, designers can look to what is related. According to Aldo van Eyck, the focus on difference has been a problem with modernist architects and has resulted in architecture that has lost touch with what is not different.³⁴ Because some problems are similar, in my investigation, I was looking for local solutions to issues like topographical variations, solar protection, rain-water distribution, and interior ventilation. Additionally, I was searching for what Ozkan calls the inherent qualities of building materials, expressiveness of structure, and functional justifications for forms.³⁵ But this process of recognizing involves

more than looking at practical aspects. As Curtis notes, "It is a matter of sensing beneath the surface, the memories, myths and aspirations that gave a society coherence and energy and then providing these with an authentic expression in architectural arrangement."³⁶ Using a participatory approach helped me uncover some of these issues.

Modifying Principles. To make architecture that is in keeping with contemporary needs, designers should avoid an uncritical acceptance of recognized principles. On the contrary, each principle should be evaluated in terms of relevancy to the current situation. For example, the vernacular solid-void relationship in Kalimantan, which equated to approximately 80% solid and 20% void on most elevations, is appropriate for spaces with few occupants or those that are occupied only at night. But in cases where the occupancy is much greater and the use is throughout the day, such a ratio would produce an uncomfortable thermal environment. Consequently, most of the public use buildings (dining hall, meeting hall, canteen, classrooms) at the youth center have a much higher percentage of openings to solid area. This allows for increased ventilation and improved natural lighting. Modifications are appropriate as a means of fine-tuning in order to better serve long-standing principles and to respond to changing use or cultural patterns.³⁷ Frampton encourages architects "...to use certain kinds of typologies drawn from history and also to reflect on these typologies by modifying them."³⁸

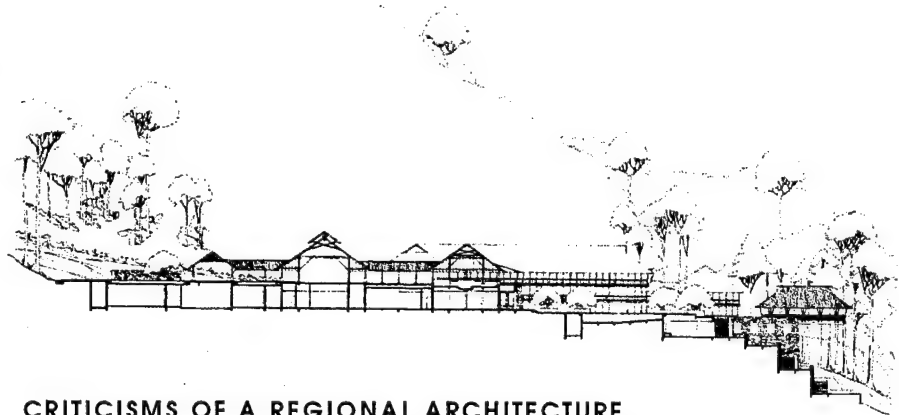
As I believe was the case in this thesis project, the modifications may be enhanced by the process of cultural "cross-fertilization."³⁹ Indonesia itself has a history of cultural interchange that informed architectural responses. The locally recognized "father figure" of modern Indonesian architecture, V.R. van Romondt, was actually from Denmark; yet, nevertheless, the majority of Indonesian architects follow van Romondt's theory.⁴⁰

They [Indonesian architects] hold the view that Indonesian architecture is still in the process of becoming, and its outcome will depend on their commitment and critical reappraisal of the cultural ideals, aesthetic tastes, and technological means that brought traditional building models and forms into being at a particular moment. They are convinced that a deeper understanding of such principles would offer contemporary architects some insight or inspiration...with their own contexts.⁴¹

Kerry Hill is a foreign architect working in Indonesia today. His firm is widely recognized as having modified local principles in a sensitive way and having integrated them into contemporary architecture. His resorts at Amanusa in Bali

and Langkawi in Malaysia (fig. 40) incorporate subtle transformations done with great skill.

Fig. 40: A section through Kerry Hill's hotel in Langkawi demonstrates a degree of continuity with vernacular traditions of steeply pitched roofs, elevated floors, and careful integration of built form into the topography. (from MacDonald, 1994)



CRITICISMS OF A REGIONAL ARCHITECTURE

Working within a pre-existing architectural language can expose architects to a host of criticisms that must be acknowledged. Obviously, the amount and scale of transformation is almost always up for debate. Some may accuse the architect of straying too far from the vernacular and others may argue that the same architect did not go far enough in departing from what has been done before. In many cultures, architects who show novelty and originality are praised as visionary. Arguably, in these cultures (e.g. the United States and Western Europe), many practicing architects see each commission "... as a vehicle for egoistic self-expression while little importance is attached to memory and continuity."⁴² In cultures like those found throughout Indonesia, such an individualistic attitude contradicts the prevailing belief in unity and cultural continuity.

Scenographic. In trying to fit into a culture based on continuity, an immediate danger is to resort to a type of architectural scenography where images are employed because of their imbued meaning. For instance, many western architects working in Southeast Asia have, unfortunately, set the elegant roof forms of the Torajan directly over their own modern buildings in Jakarta or Singapore. These and many similar examples support Curtis' claim that, "At its worst it (regionalism) may degenerate into a skin-deep, instant history, in which ersatz images of the vernacular combine with pastiches of national, historical prototypes."⁴³ And in Frampton's terms, a scenographic architecture evokes "...not a critical perception of reality, but rather the sublimation of a desire for direct experience through the provision of information. Its tactical aim is to attain, as economically as possible, a preconceived level of gratification in behavioristic terms."⁴⁴

Out of Context. Beyond applying form for its scenographic value, contemporary architects who anchor themselves in the local traditions may be guilty of taking those traditions and applying them out of context. With its diversity of religious and ethnic groups, it is misleading to think in terms of one Indonesian regional expression in architecture.⁴⁵ Taking lessons from Nias, for instance, and applying them to Kalimantan may be completely inappropriate both culturally and technically. While beautiful in their own right, many contemporary resorts in Southeast Asia, in Tafuri's view, erroneously insert "...a theme deeply rooted in a particular, totally different context."⁴⁶ Rudolph identifies three contextual limitations to regionally specific architecture.⁴⁷ First, such an architecture is limited by the industrialization of structure. What developed and evolved according to the requirements of a craft cannot be honestly reproduced by machine. Second, the ease of communication and travel is a limitation. Regardless of how careful architects working across cultures may be, they are still bound to integrate knowledge from their own context into the final product. The third limitation identified by Rudolph is the rising cost of traditional material and skilled labor. "Going from wood, which the villages of the world are built of, to fireproof construction is a huge architectural problem and it is very seldom solved in an eloquent way."⁴⁸ Fortunately, I avoided this problem because the youth center will be made primarily out of wood using local craftsman and locally available materials. Finally, while the beauty of traditional structures may lead architects to study their underlying principles, the actual form of the original structure may have outlived its usefulness. Waterson recounts a story that exemplifies this problem.

At a seminar held recently to discuss Torajan culture, a number of speakers expressed the opinion that builders and architects were much to blame for departing from traditional styles, and were 'ruining the *adat*.' But when asked if anyone present would be prepared to live in a house of the traditional style [fig. 41], no one could bring themselves to reply in the affirmative.⁴⁹

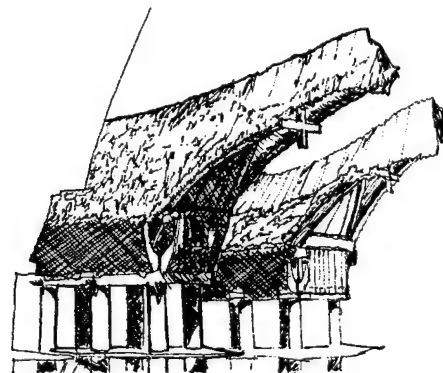


Fig. 41: The elegant ancestral homes of the Torajan exhibit a strong roof form that is easily taken out of context (after Dawson and Gillow, 1994).

INTERWEAVING

This story reinforces the fact that a transformed architecture rooted in its cultural setting should be based on generating principles rather than on outward appearances. To avoid misappropriating principles or forms out of their intended context, the burden is on the architect to evaluate the past solutions while always keeping an eye on present conditions.

CONCLUSION

The act of transforming is a necessary and vital step in the process of interweaving. When taken together with identifying needs and anchoring the project in the requirements of the place, the entire process is one that, ideally, will produce a rooted architecture capable of meeting the current criterion. Naturally, such an approach will limit the range of architectural options available. Perhaps most notable in its absence would be architectural novelty. It is in fact this idea of novelty or originality which has been a major characteristic of modern architecture that is atypical of many non-western cultures and those cultures' resulting vernacular architecture.⁵⁰ This was my finding in Kalimantan. But this does not mean that contemporary architecture in Indonesia must remain stuck in past traditions. To the contrary, Sudradjat concludes, "The ability to accept new influences and to add them to the existing diversity of elements in her culture lies, perhaps, at the core of the real Indonesian identity."⁵¹

CHAPTER SEVEN

ARCHITECTURE TRANSFORMED

*Patterns of development
Patterns of growth
Rigid
Gridded
Blown away
Where do we play?
Where do we learn?
On the streets, in the schools
but in those places I've lost my past,
I've lost a link*

*A place we need
A place we recognize
Yet created for us anew
Looking out
I see the strength of the trees
I feel the embrace of the earth
I hear the music of the stream
Walking out
I leave the village familiar
And enter into nature's realm*

MAKING ARCHITECTURE

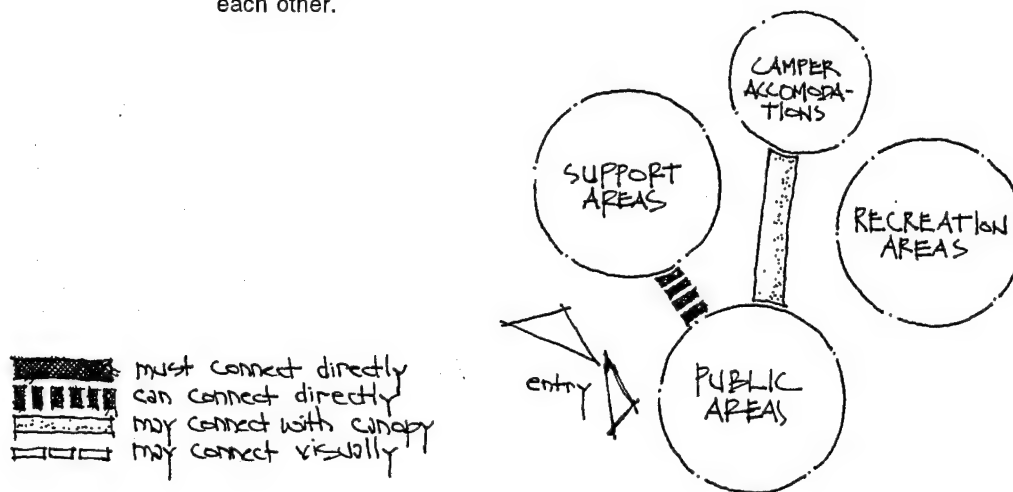
For me, the short poem above captures the essence of this project. This project is about people. It is about continuity. It is about contemporaneity. The greatest challenge is to make an architecture that responds to the feeling in the poem. Simply accepting the traditional design and building methods would be doing a disservice. Yet, through this project, I wanted to link conceptually to the

rich architectural heritage of the region. At the same time, I wanted to transform the lessons of that past into a built environment appropriate for today. This final chapter documents the transformations and the architectural solution.

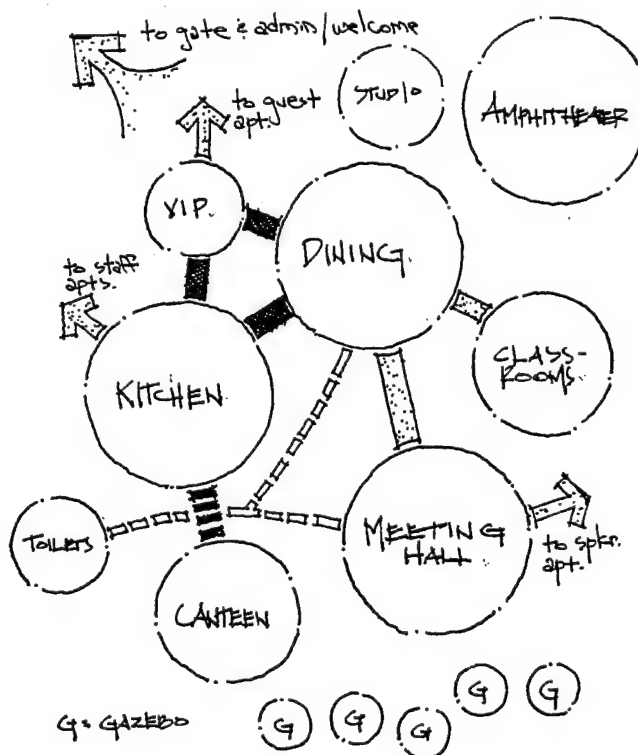
My Vision. In my study of the vernacular architecture of the region, I uncovered a number of design principles (chapter five) that influence the Kalimantan building culture. For this project, some of these principles were worth following outright, some needed to be transformed, and some needed to be abandoned. The task was to assess critically each principle in terms of its relevance to the period, the place, the people, and the program. This process clarified in my mind what the design should become.

I saw this project as a new interpretation of the traditional village. The center would become a community of friends participating in some of life's activities. It would be set in a small clearing in the jungle, with room to breathe the air of openness and experience the changing of light and sound. The buildings would vary in size to accommodate different levels of use. They would all be built using a common tectonic language, derived in part from the vernacular, but improved to allow more light and air inside. The use would be articulated through individual elements added up to make a whole. Each element would be placed just where the climate and site and function needed it to be. The entry to the youth center would pass over a bridge then under a gate, designed and built locally, and the public buildings would be nearby. The main building, a dining hall, would occupy a prominent location and have small terraces or decks. At the end of a pedestrian street, would be the meeting hall. Classrooms would face the street and a stair, with places to stop and linger, would lead up the slope to the more private neighborhoods with their dormitories and staff houses. The dormitories would be reminiscent of Dyak longhouses, with shared spaces in front, and small rooms behind. Inside, the spaces used during the day would be naturally bright, and designed to catch and enhance the breeze. The structure would be clear and strong, the skin wrapped only where it was called for by the program. The spaces would fit today's need but be flexible enough to change tomorrow. Other buildings and elements of nature would be revealed through the transparency of the walls. The buildings would join together to create outdoor space with life and mystery. There would be outdoor places to gather like terraces or decks, with light filtering through trellises, much like the light of the jungle filters through the canopy. Each unique spot would have views into the woods or down to the stream. When seen as a whole, the buildings, walkways, decks, stairs, and terraces would join together in a choreographed dance with the site. Each element placed to bring more life to the next.

Activity Relationships: Main Functions (fig. 42). Achieving my vision meant that I first needed to understand how the main program pieces related to each other.



Activity Relationships: Public Areas (fig. 43). Then, I would need to understand how the specific functions within each main area interrelated. The public areas for staff and youth...



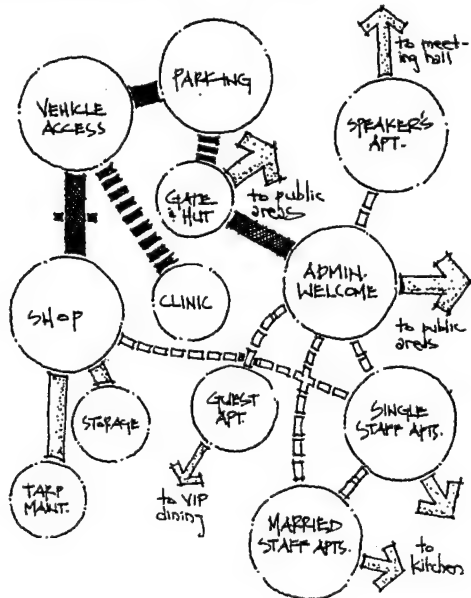


Diagram illustrating the layout of a school campus with various sports and recreational facilities:

- SPORT HALL
- ROPE COURSE
- VOLLEYBALL COURTS
- BADMINTON COURTS
- CANTEN
- WATER SLIDE (with arrow pointing to stream)
- AIR RIFLE RANGE
- JOGGING PATH
- FRISBEE GOLF

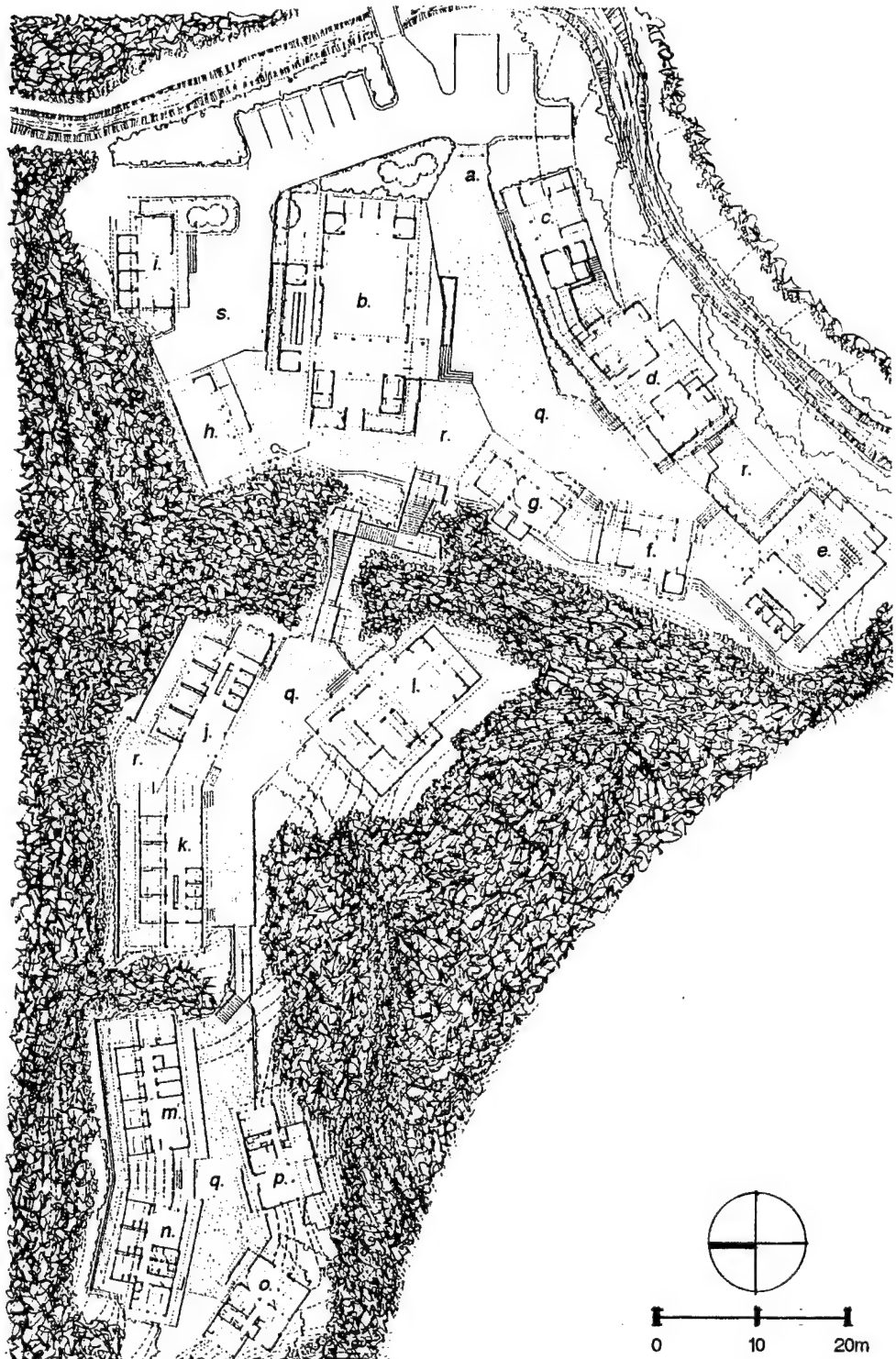
The image contains two hand-drawn diagrams. The first is a 3x3 grid of circles, each containing a letter. The letters are arranged as follows: Top row: TP, TP, CT; Middle row: TP, TP, TP; Bottom row: CT, TP, TP. The second diagram is a triangle with three circles at its vertices. The top circle contains 'DEM', the bottom-left circle contains 'LAURE', and the bottom-right circle contains 'DEM'. The triangle is formed by three lines connecting the circles.

YOUTH CENTER MASTER PLAN (fig. 47). The individual buildings would be placed in neighborhoods based on their function and relationships: public areas near the access point and stream, semi-public areas up the first slope, and staff areas set farthest back for privacy.

Key

- a. entry gate
- b. dining hall
- c. administration
- d. classrooms (1 & 2)
- e. meeting hall
- f. classroom 3
- g. recording studio
- h. shop
- i. clinic
- j. youth dorm 1
- k. youth dorm 2
- l. canteen
- m. guest dorm
- n. staff dorm
- o. staff house 1
- p. staff house 2
- q. pedestrian street
- r. terrace
- s. service yard

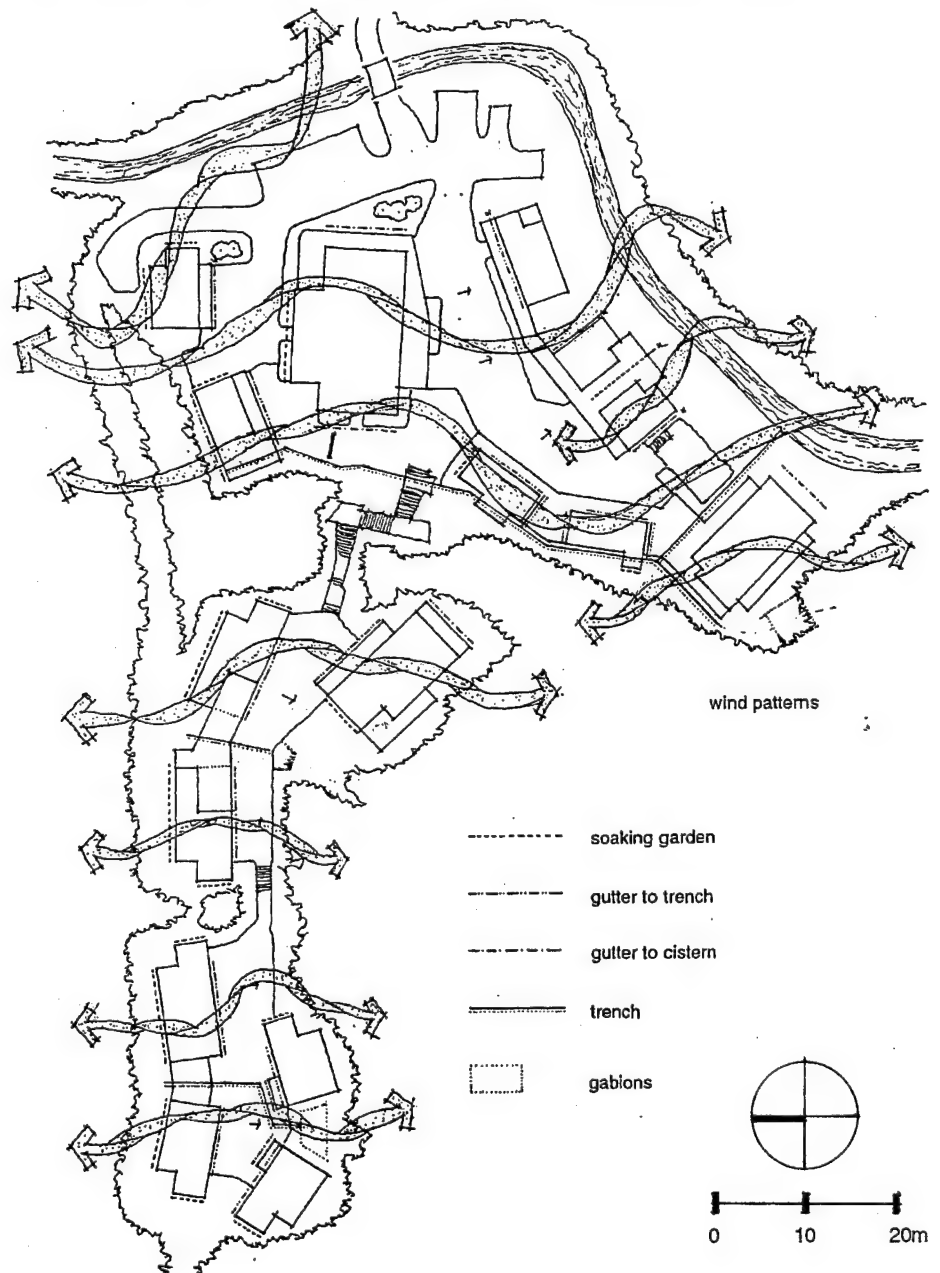
Note: The area shown at right represents roughly 1/4 of the total site (as shown in chapter four). The area shown here is the northeast quadrant of the complete site. In order to keep the remainder of the site undisturbed, the built area will be confined to this zone. The recreation functions will be placed in the area labeled "flood zone" on page 67.



MASTER PLAN-MODEL (fig. 48). I developed the design primarily in model form in three major stages. In the first stage, I created the prototypical form. In the second stage, I built rough study models of each building. Finally, I made changes to each building in order to improve its fit with the whole and then I built the final models [view below is looking west; late afternoon].

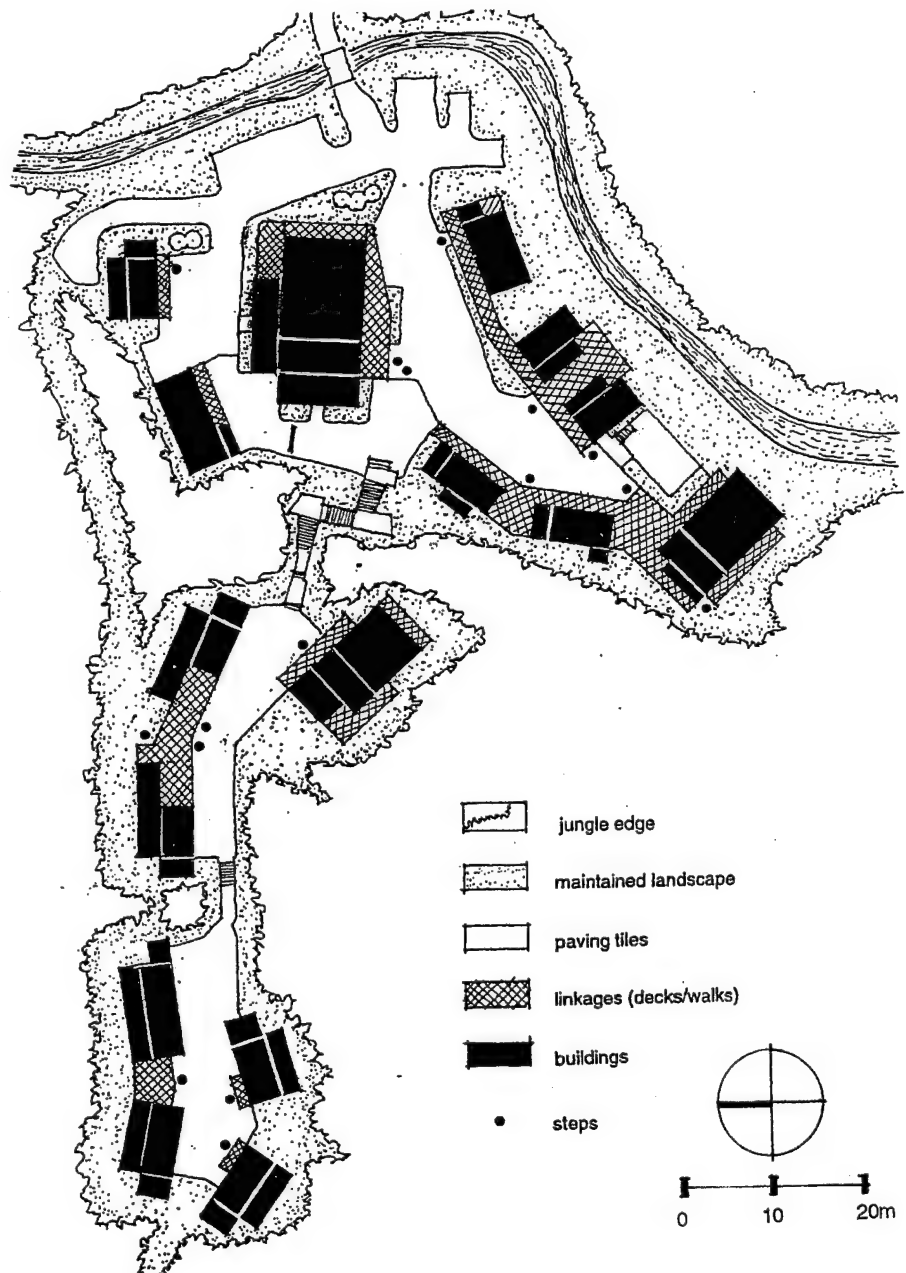


Respecting Nature: Accommodating Drainage and Natural Ventilation (fig. 49). The traditional approach to working with nature in a non-technical sense would be abandoned. A system of drainageways, most exposed as they traveled to the stream, would bring a temporal quality to the spaces they passed. The buildings would be oriented to best capture the breezes and they would work together to enhance those breezes throughout the day. The streets would be paved with soft tiles, spaced to allow grasses to grow between them. Buildings with large roofs would have gutters to capture the rain and divert it into cisterns for reuse. Others would have eaves directly over the drainageways.



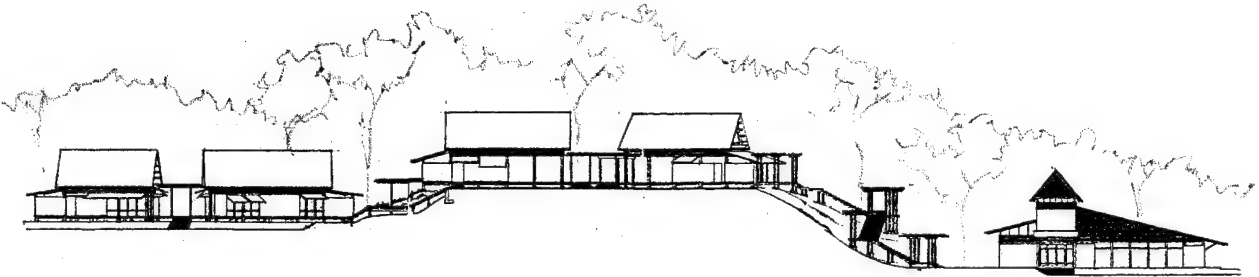
Linking Community: Walks, Decks, Plazas, Terraces (fig. 50).

Unlike traditional villages, with their independent buildings, these new buildings would be linked to form a larger community. These links would be built according to their specific site. Some would be elevated walkways that connected buildings in a series. Some would be decks, large enough to be outdoor rooms. And others would be terraces, cut into the earth to give a feeling of permanence against the light wood structures. Most links would be covered with a simple trellis that could support vines growing overhead.

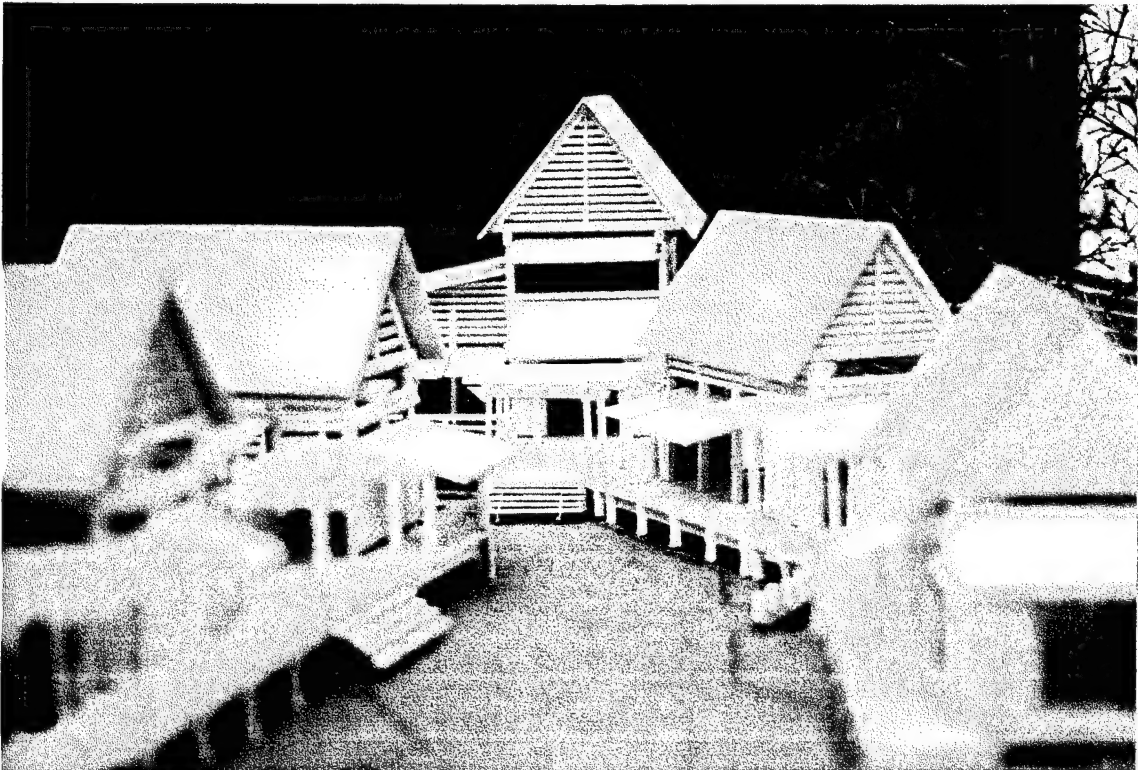


INTERWEAVING

SITE SECTION (fig. 51). The links can be seen in this section, cut across the site from east to west. In the sequence of buildings, a rhythm would be established, alternating between building and link, and moving progressively from public to private.

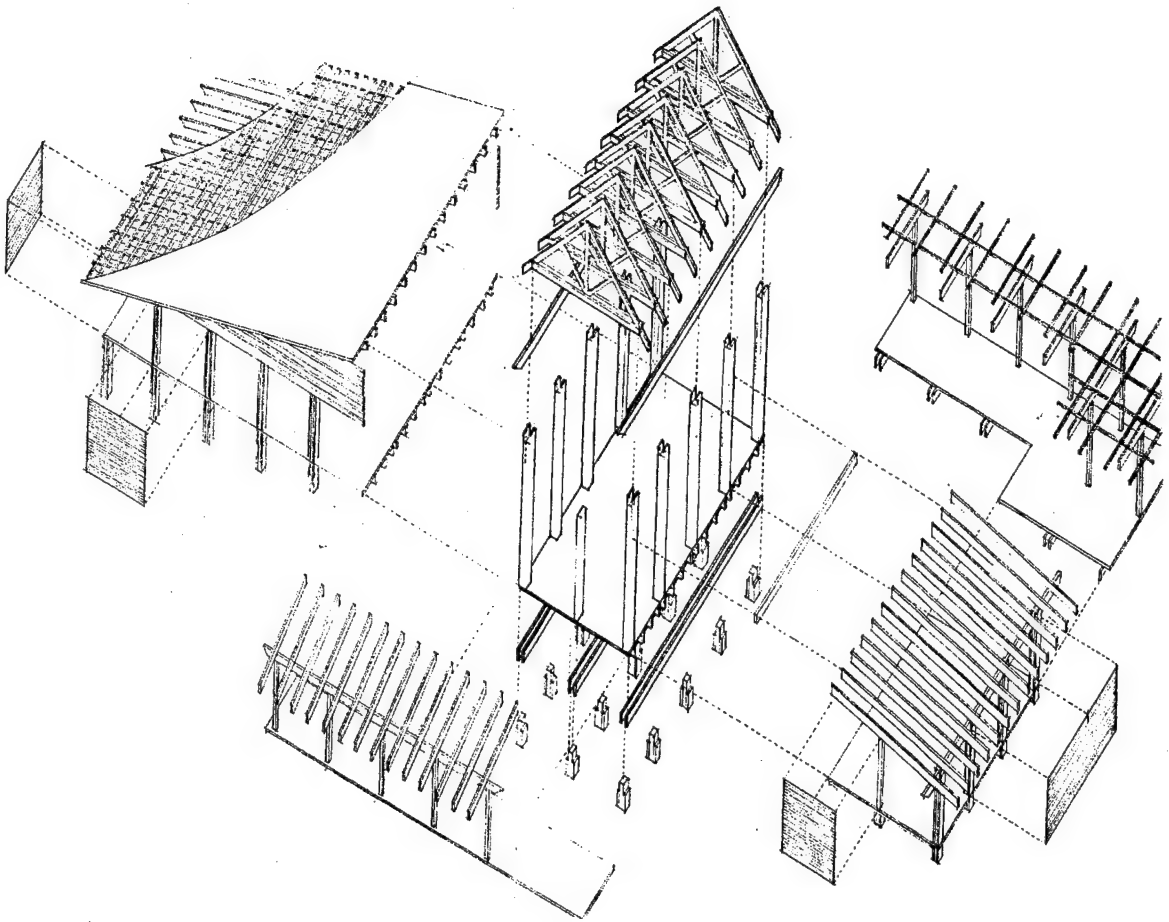


CREATING OUTDOOR SPACE (fig. 52). In their form and placement, the buildings work together to create well defined and usable outdoor space. Using elevated walks, decks, terraces, and entry steps, numerous activity nodes are created along the pedestrian streets for gathering and socializing.



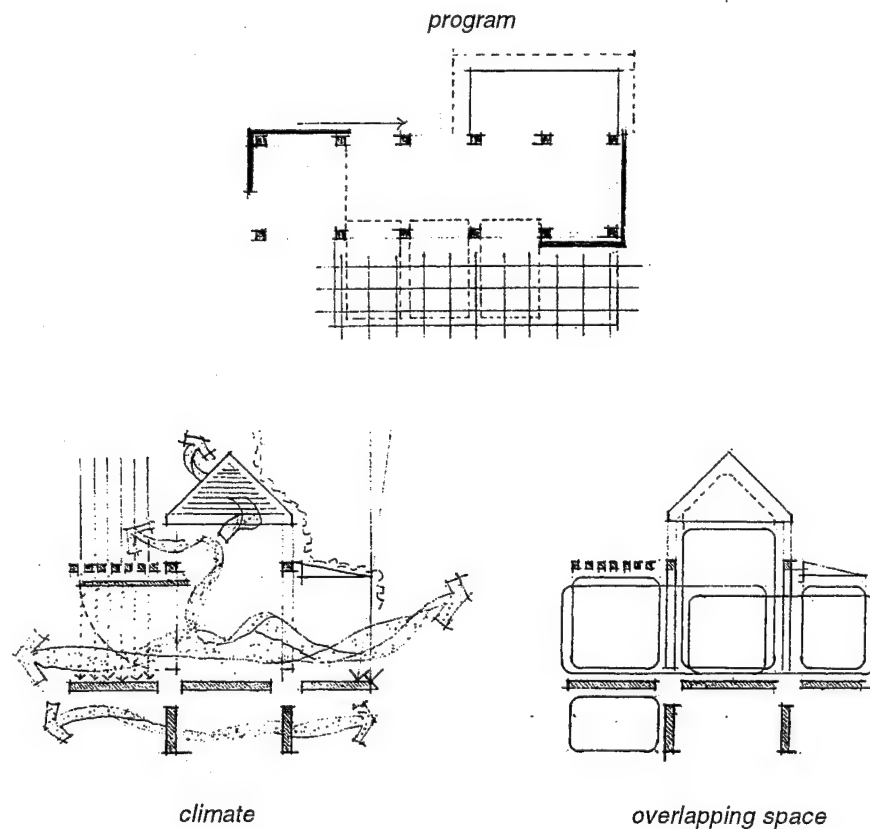
TRANSFORMATIONS AFFECTING THE ARCHITECTURE

Adding Forms: Main Volume, Minor Volumes (fig. 53). The buildings themselves would be based on a principle of addition. The main function would be enclosed by the largest spatial envelope. Supporting functions would be smaller in scale and could be built on over time. The structure would utilize native hardwoods for their longevity and natural beauty. A post-and-beam frame with elegant trusses would support the dominant roof and, a similar frame with rafters would support the smaller, shallower roofs over support areas.



Opening Space: Temporal Approach to Climate and Use (fig. 54).

The spaces, especially in buildings used during the day, would be very different from the traditional model with its minimal fenestration. Sliding doors and hinged panels would be the walls. When open, the interior space would spill onto the decks and walks. Cooling breezes would circulate freely through the space but the intense sun would be blocked. When closed, the buildings would be secure at night. Or, some could be open and some closed, whatever the people inside wanted and needed. Most buildings would be elevated to allow the breezes to flow under, and sometimes, small "rooms" would be created, like under the meeting hall, that would be protected from the sun or rain. The main volume would be taller than the rest, with openings at the gabled ends to pull air up and out of the buildings, setting up a system of stacked ventilation. The buildings would be kept narrow, one-room deep, to facilitate cross-ventilation. And natural light would filter in on all sides through louvered strips encircling each building. The amount of fenestration as a percentage of floor area, sized to remove all the internally generated heat, is based partially on a calculation that incorporates occupancy load, activity level, and total sensible heat gain due to occupancy and equipment, and average wind speed.



DETAILED DESIGN PROPOSALS: NEIGHBORHOODS

Neighborhood One (fig. 55). The first neighborhood in the center would be for the public functions:

- the administration building (with its own porch, overlooking the stream);
- classrooms one and two (linked together by a shared deck);
- the meeting hall (adjacent to a deck and large terrace for spillover);
- classroom three;
- the small recording studio (a hinge between old and new, up and down);
- the dining hall (elevated slightly with a low stone wall around its front side);
- the clinic (with access to a small van or car);
- and the shop (set behind yet with easy access to the entire site).

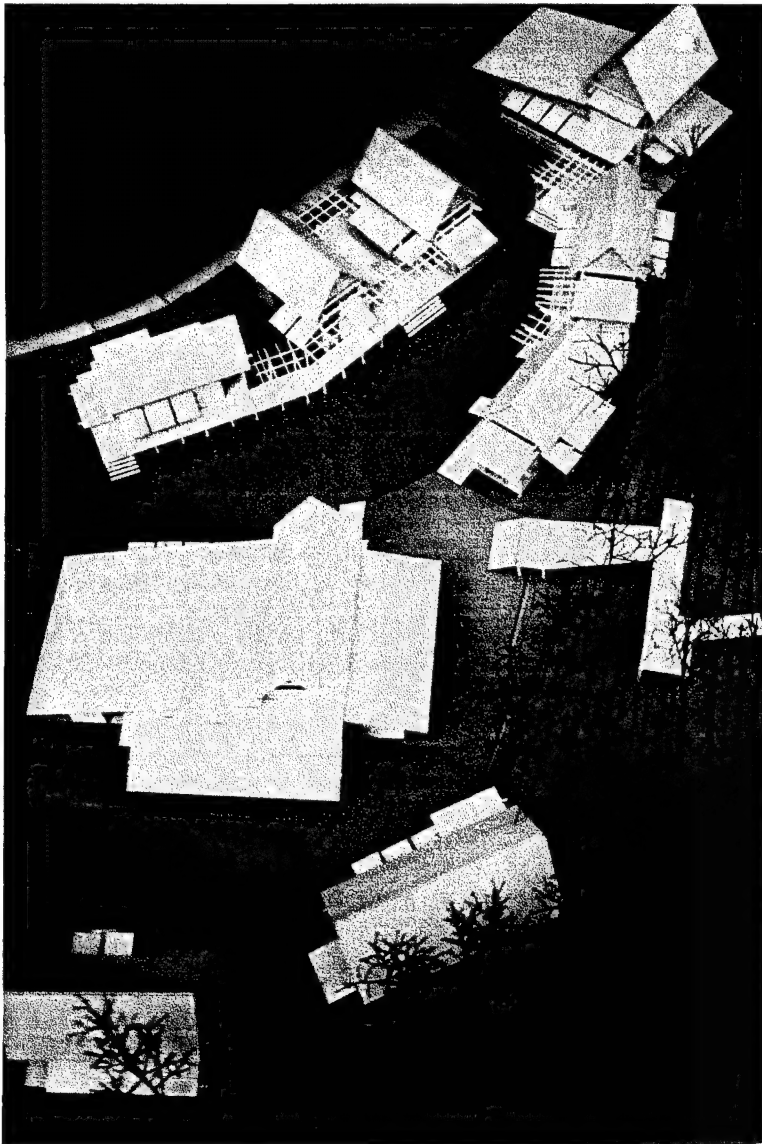


Fig. 55: Neighborhood One. This view is looking south, over the large, sweeping roof of the dining hall and down towards the meeting hall which terminates the pedestrian street.

Neighborhood Two (fig. 56). This neighborhood would be set on the first rise, leveled slightly and enlarged with two retaining walls. It would be connected to the public neighborhood with a wooden stairway, woven into the trees. The semi-public functions in this area would be:

- the canteen (set above the classrooms to minimize noise conflicts);
- dormitory one for twenty youth;
- and dormitory two for twenty youth (connected with dormitory one by a shared deck).

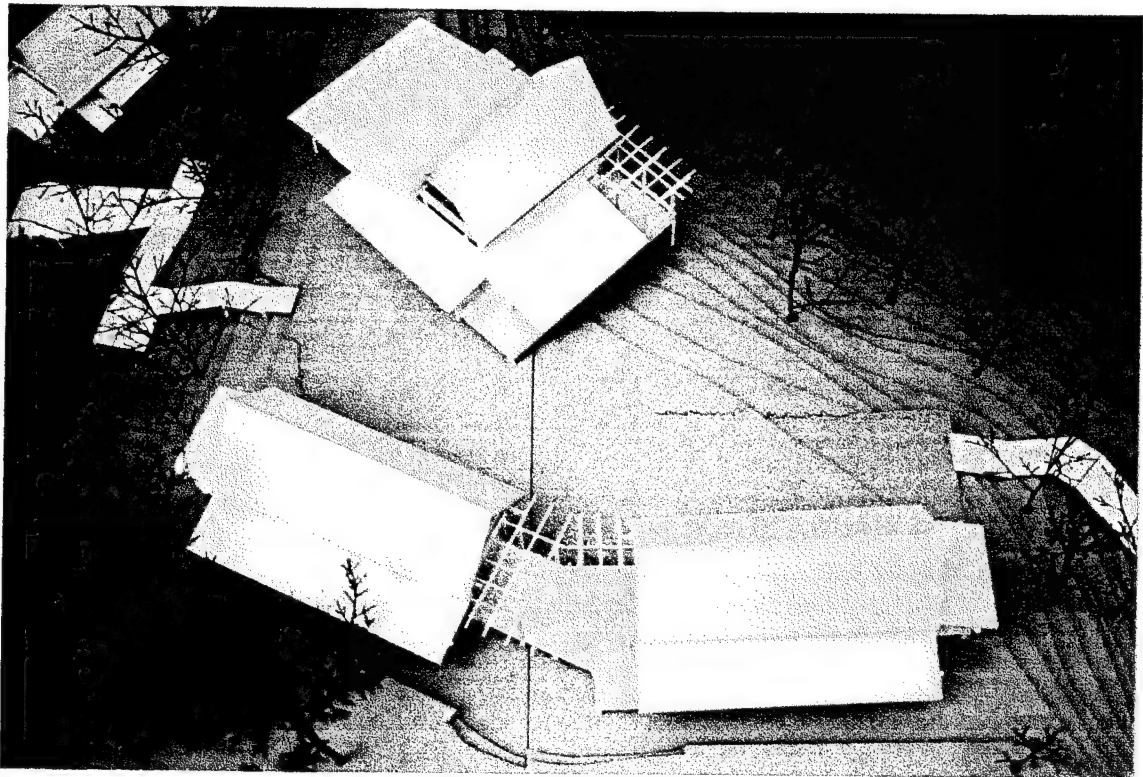


Fig. 56: Neighborhood Two. This view is looking south, over the two linked youth dormitories. The canteen is alone at the top of the image. Steps connecting to the lower neighborhood are at the left.

Neighborhood Three (fig. 57). The most private functions would be set back from the public areas on a smaller street scaled to the amount of use it will receive and to the space available. The four buildings here would be:

- the guest dormitory (open to views of the jungle on three sides);
- the staff dormitory (accessed by a small deck shared by the guest dormitory);
- and two staff houses (with private decks, tucked into the jungle canopy).

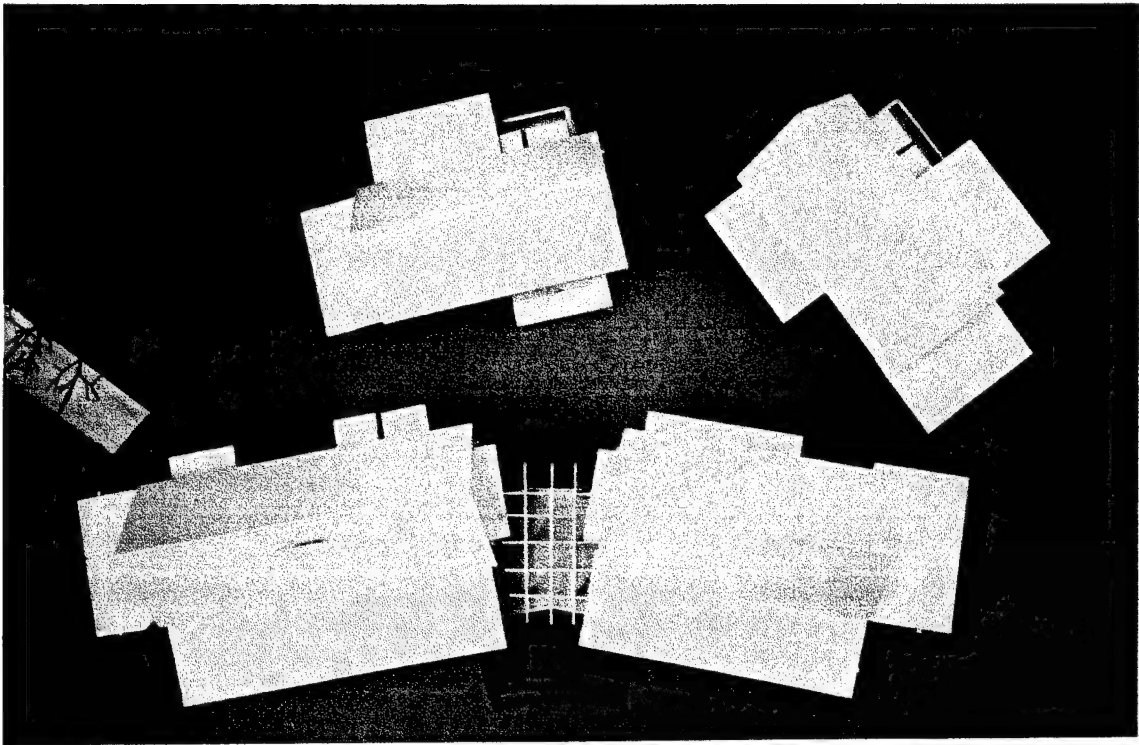
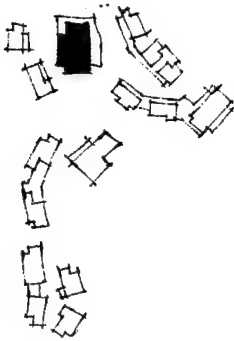
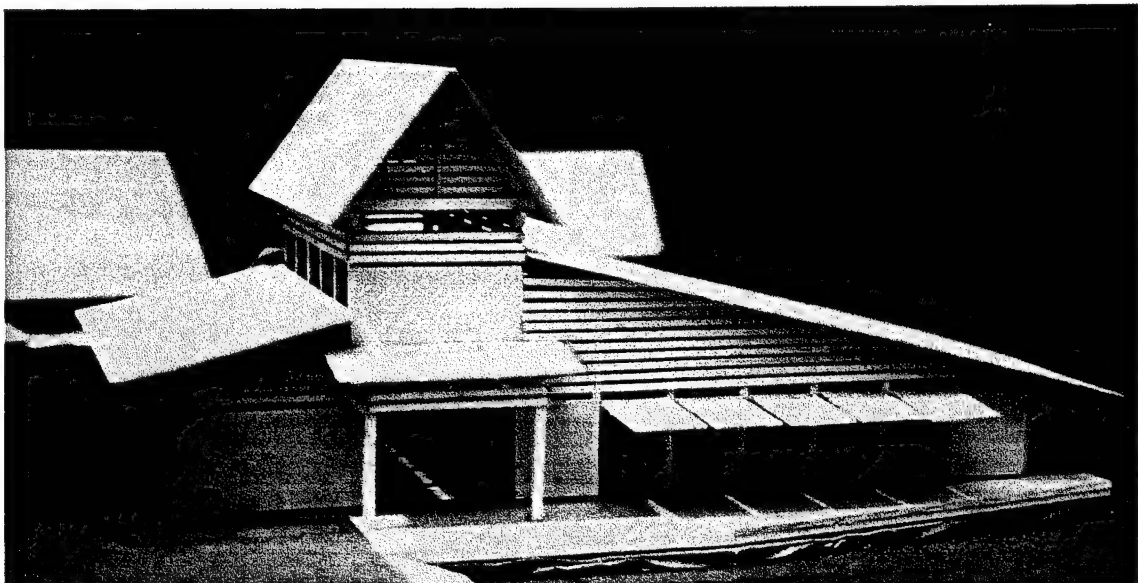
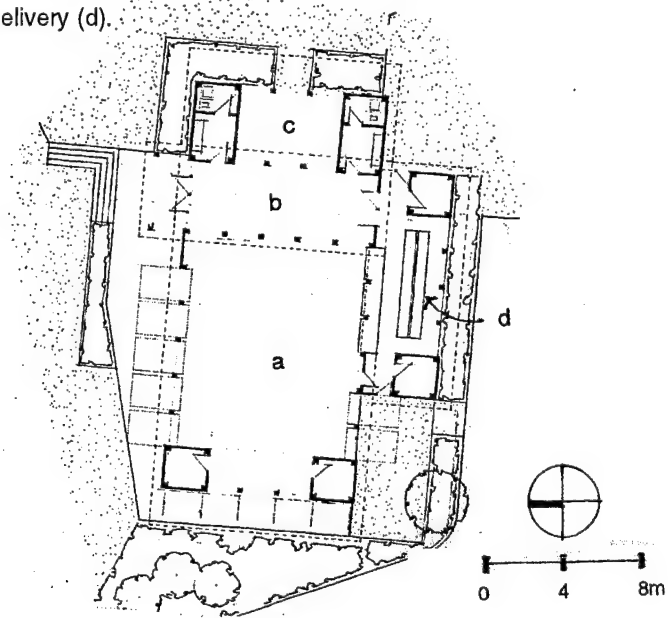


Fig. 57: Neighborhood Three. This view is looking down from above. Again, south is towards the top of the image. The two staff houses are independent and the two dormitories are linked by a shared entry deck.

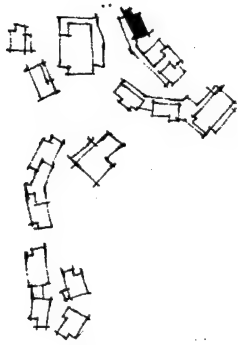


DETAILED DESIGN PROPOSALS: BUILDINGS

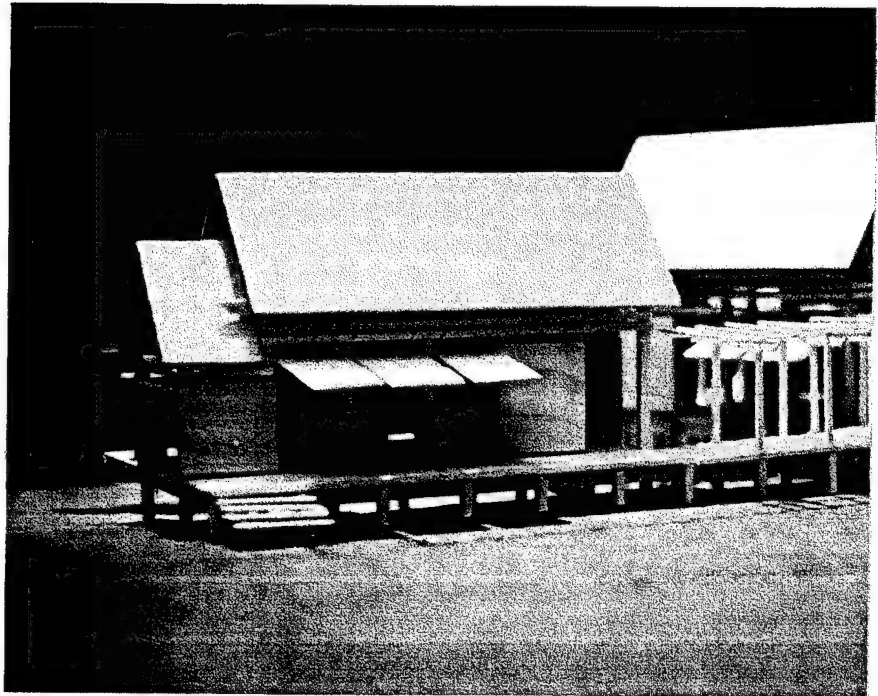
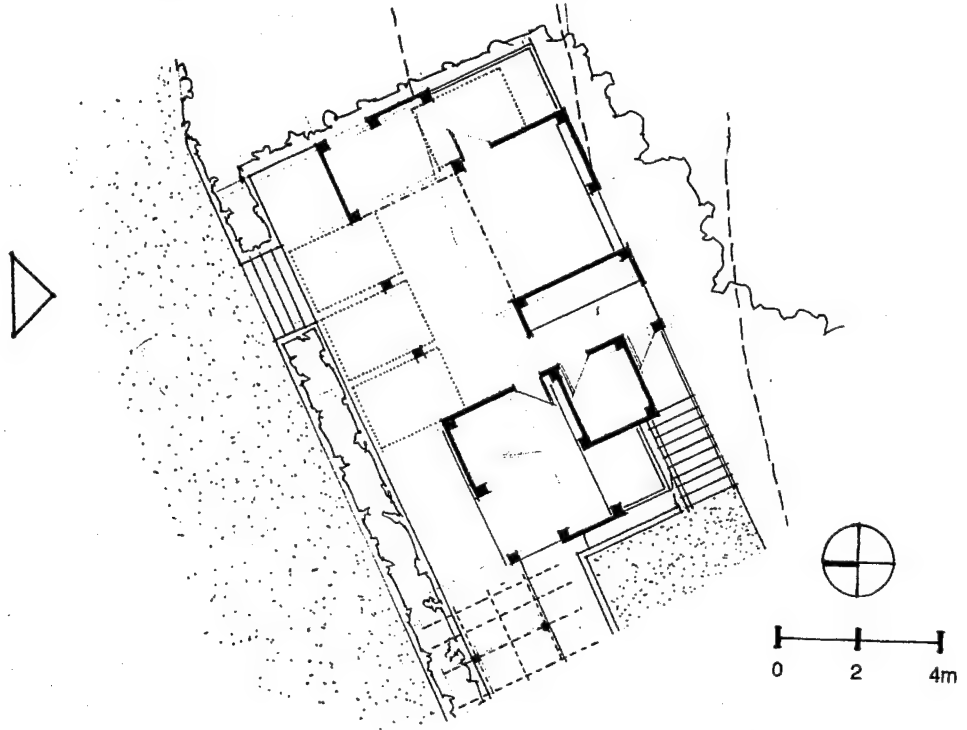
Dining Hall and Kitchen (figure 58). The center's main building would be the dining hall. It would serve up to three meals daily to youth and staff and should be well-ventilated. By dividing it into zones, different groups can use it at the same time. The largest area seats up to 200 (a). The entry volume (b) handles lines that may form during serving. When needed by guests and visitors, the smaller dining area (c) on the west side could be made private by sliding panels. Smaller outdoor "rooms" surround the interior. The kitchen abuts the service yard for easy delivery (d).



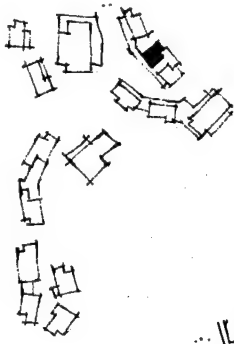
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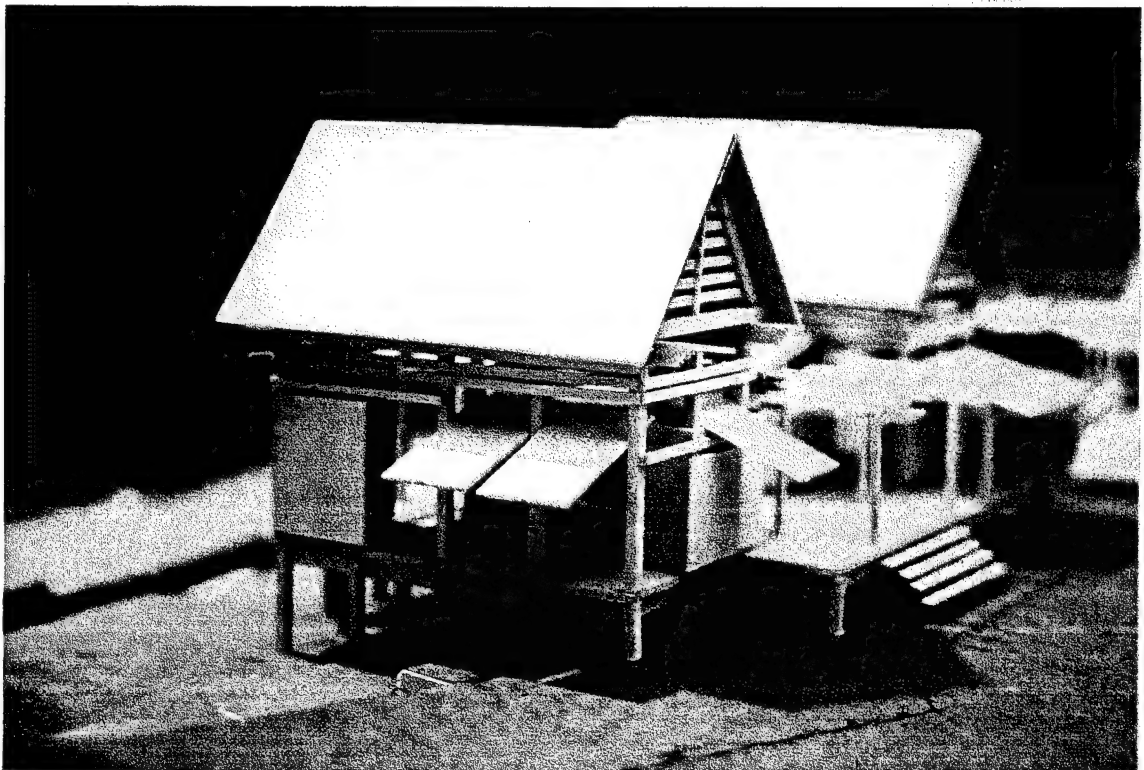
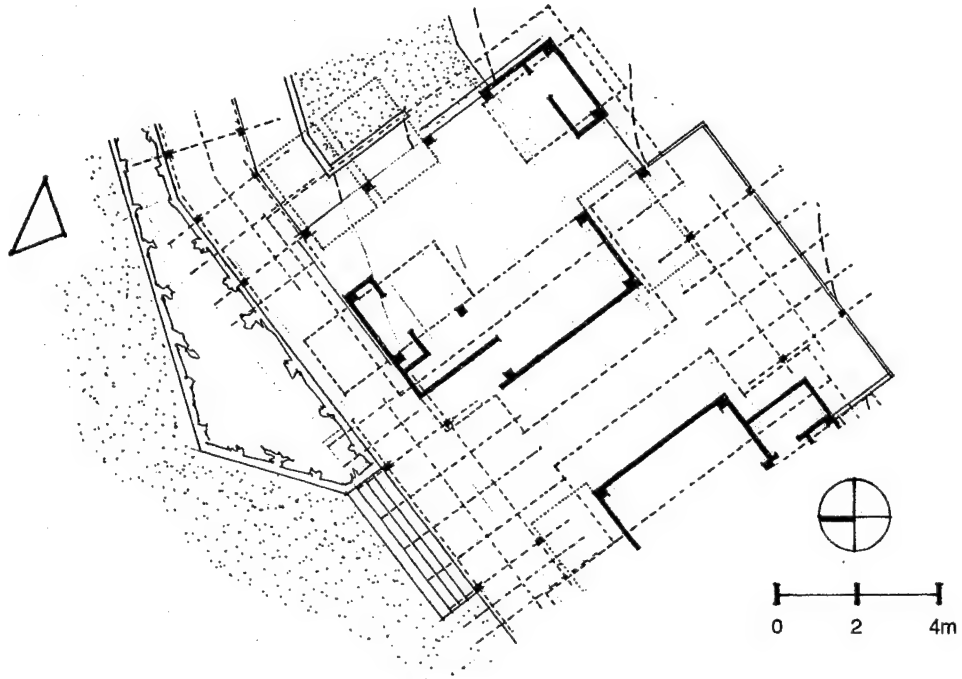
Administration Building (fig. 59). Just off the main entry to the center would be the administration building. Offices for the center's director, program manager, secretary, and user's secretary would be here.

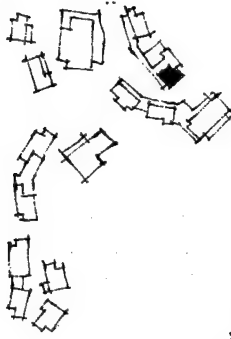


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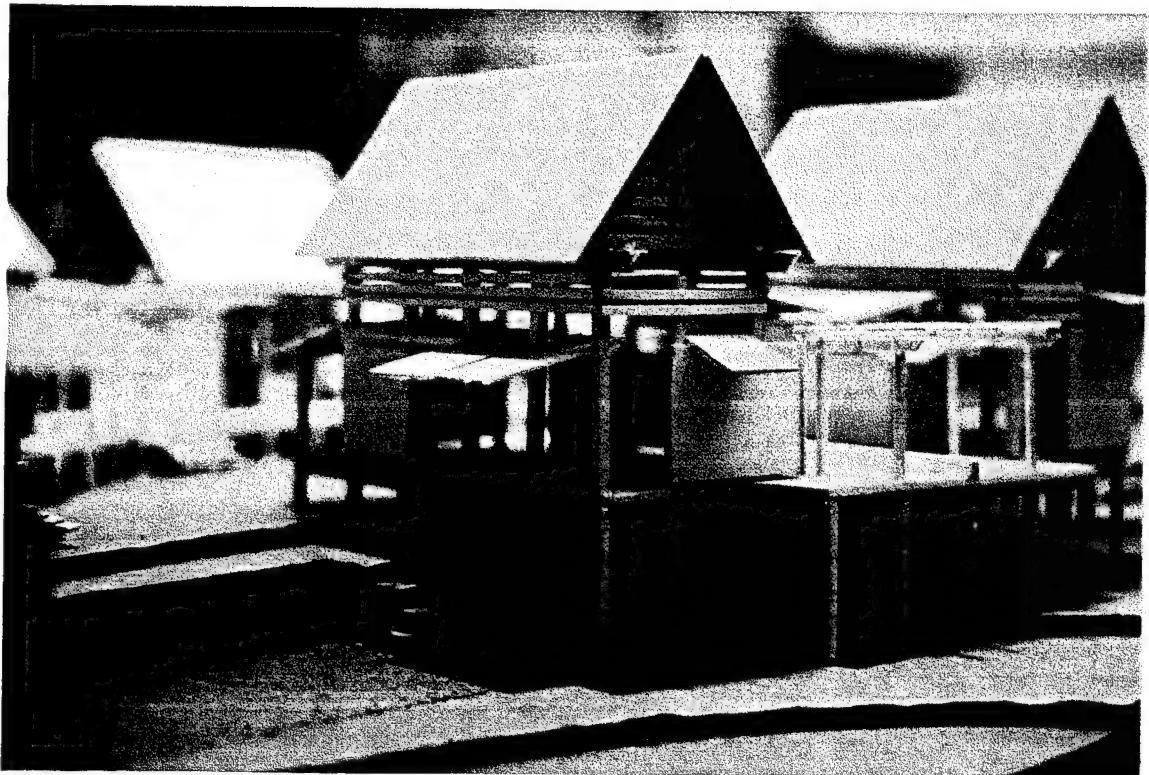
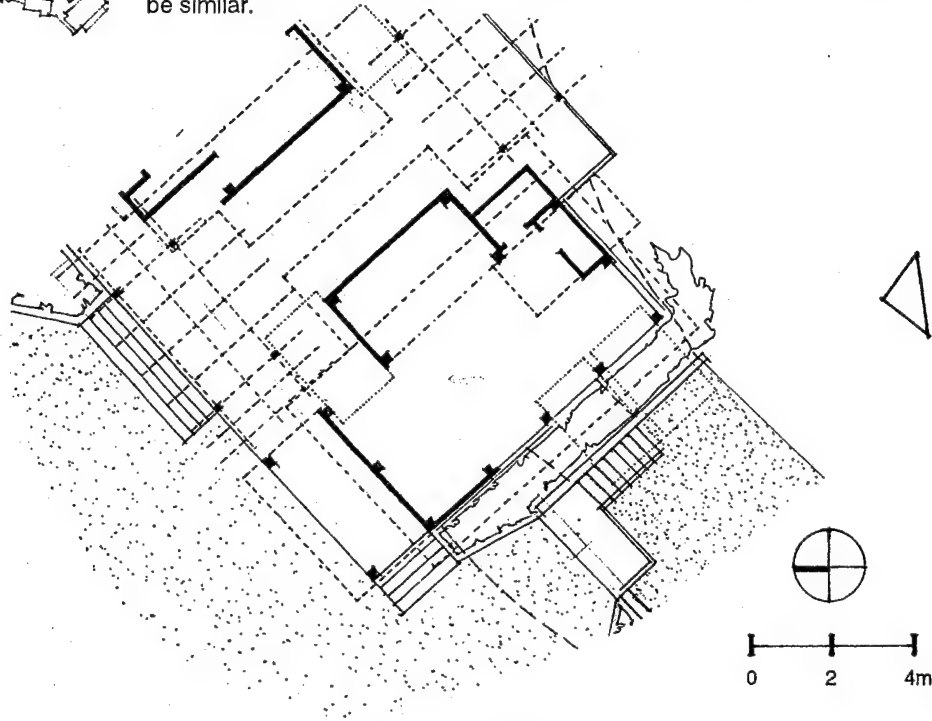


Classroom One (fig. 60). The classrooms would be used for a variety of education activities from structured classes to arts and crafts workshops. Up to 40 youth may use the building during formal class sessions.

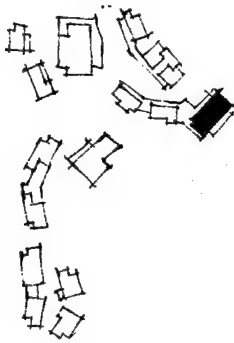




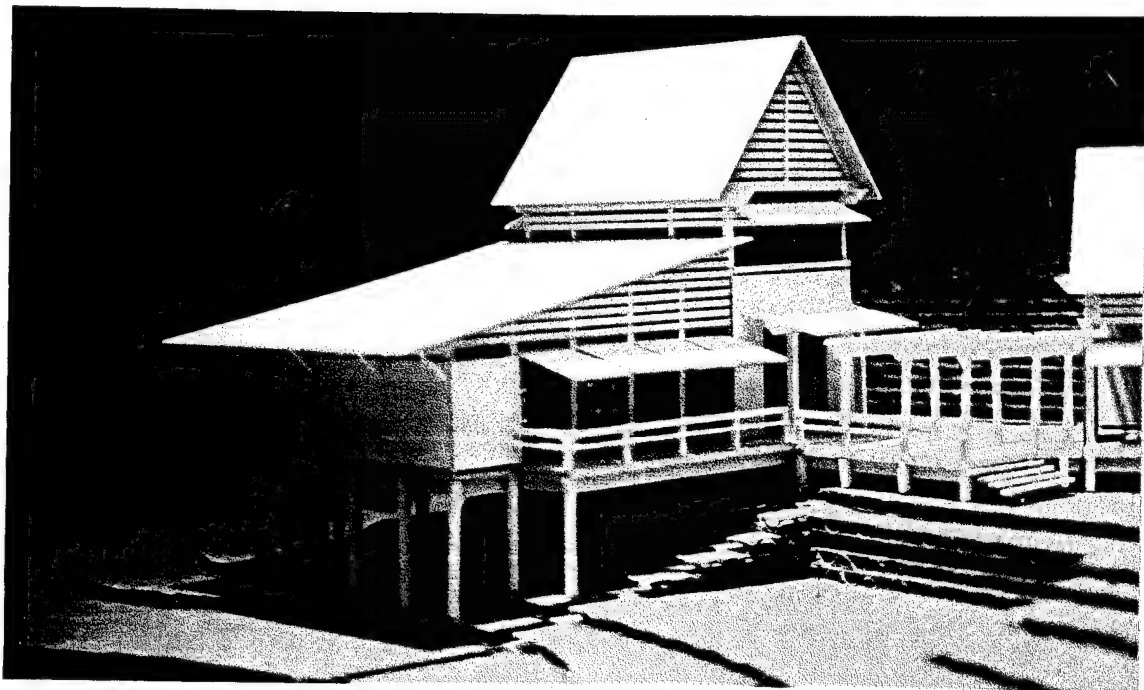
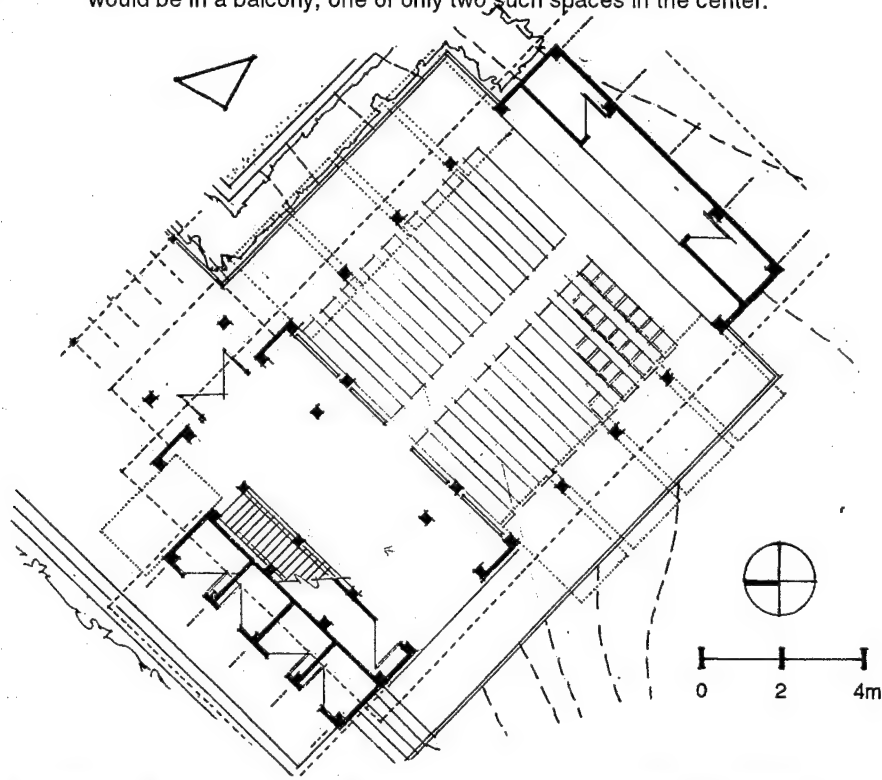
Classroom Two (fig. 61). Classroom two shares a trellised deck, overlooking the stream, with classroom one. The use and layout of the two classrooms would be similar.



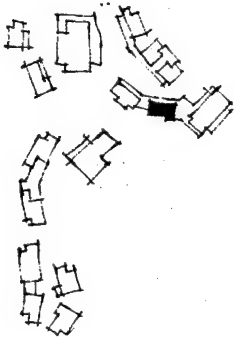
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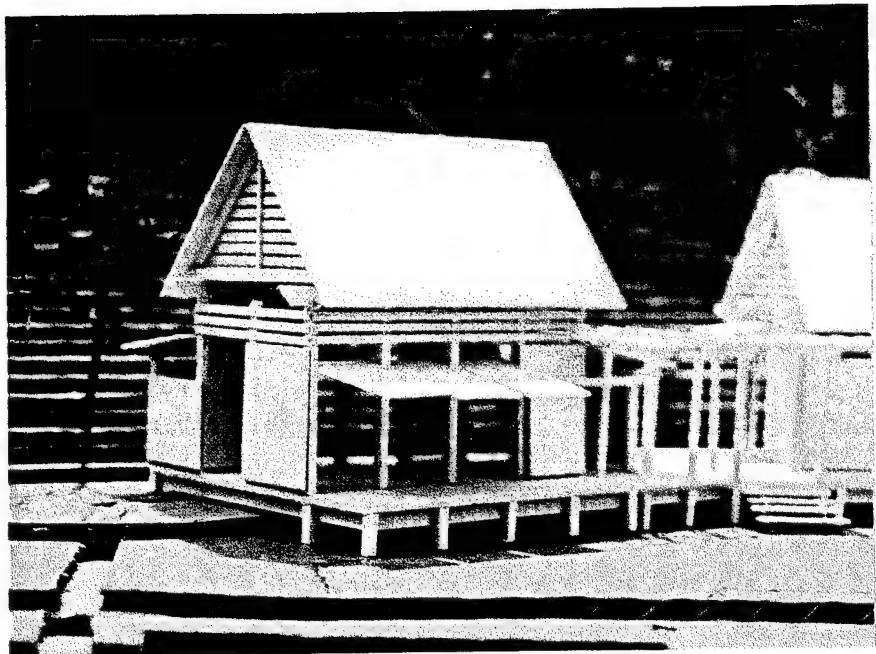
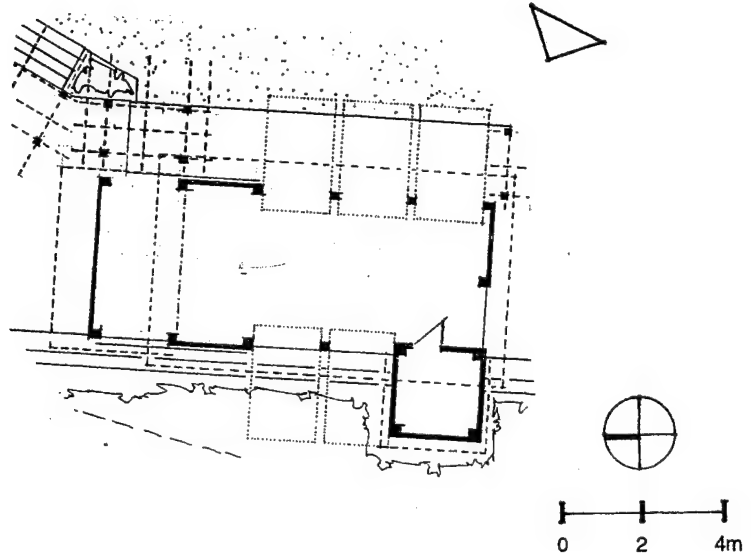
Meeting Hall/Chapel (fig. 62). This building, terminating the lower pedestrian street, would accommodate 200 people. Seating would be in chairs that could be easily removed if needed and stored in nearby closets. Of the total, 40 seats would be in a balcony, one of only two such spaces in the center.

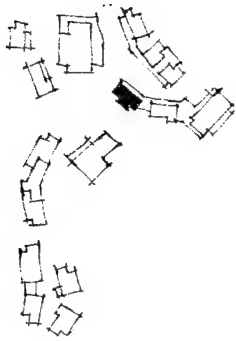


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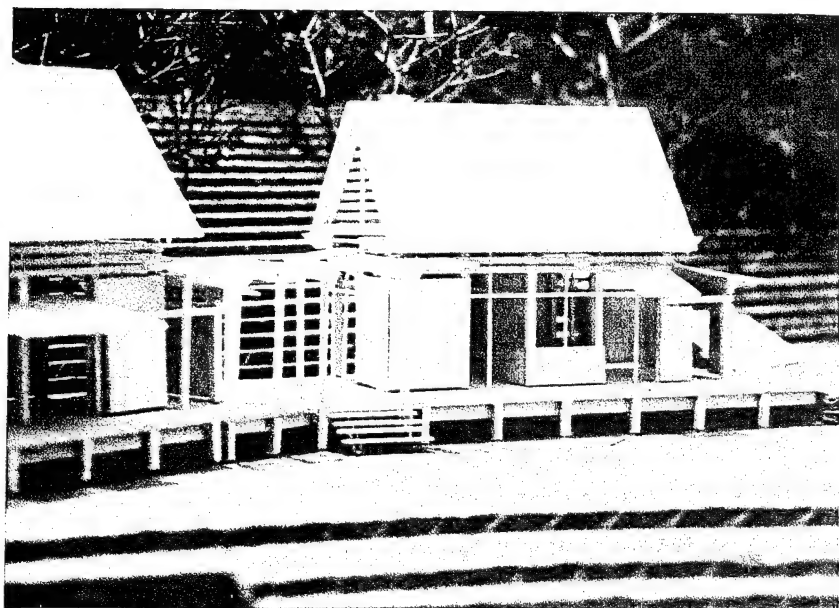
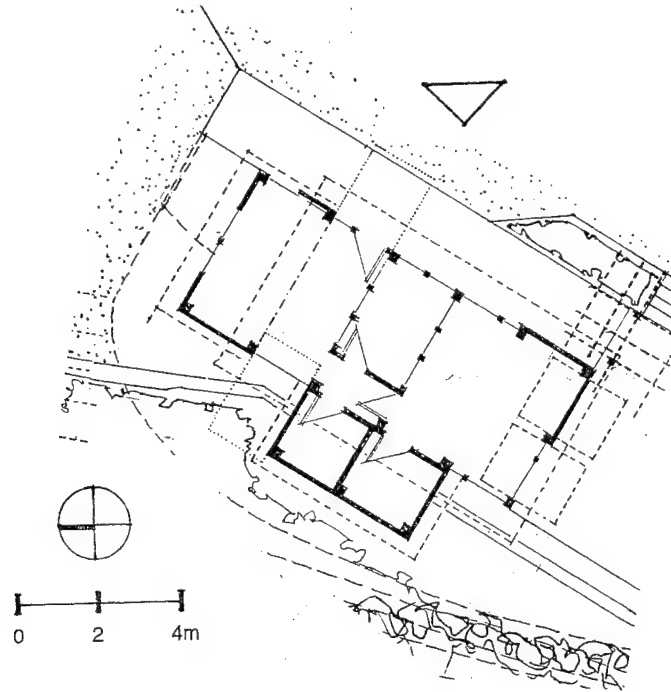


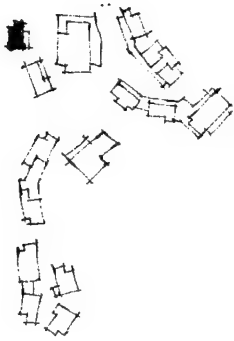
Classroom Three (fig. 63). Reconfigured to fit its site, classroom three would also support up to 40 students. It would share a large deck with the meeting hall and be linked by a covered walk to the recording studio.



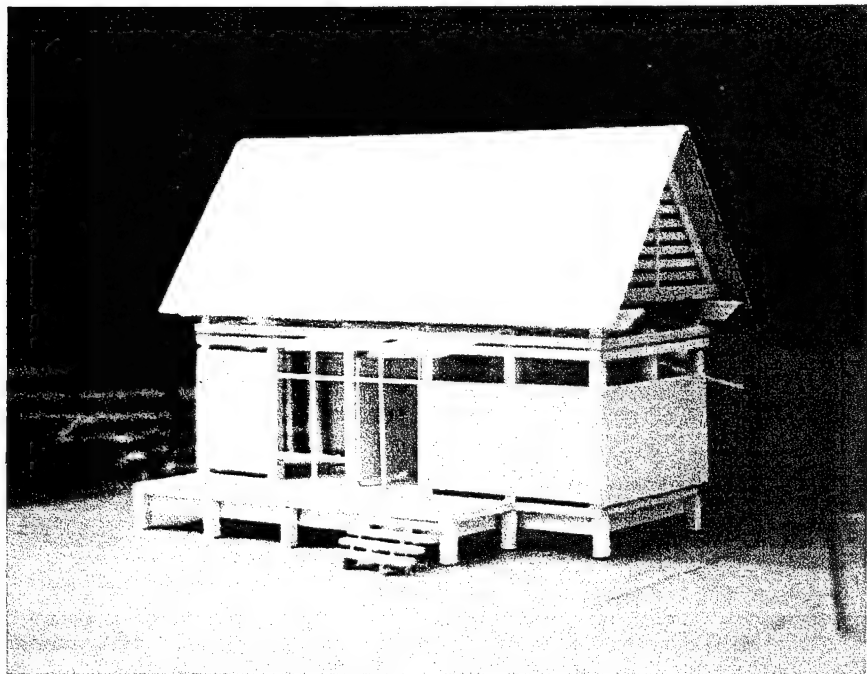
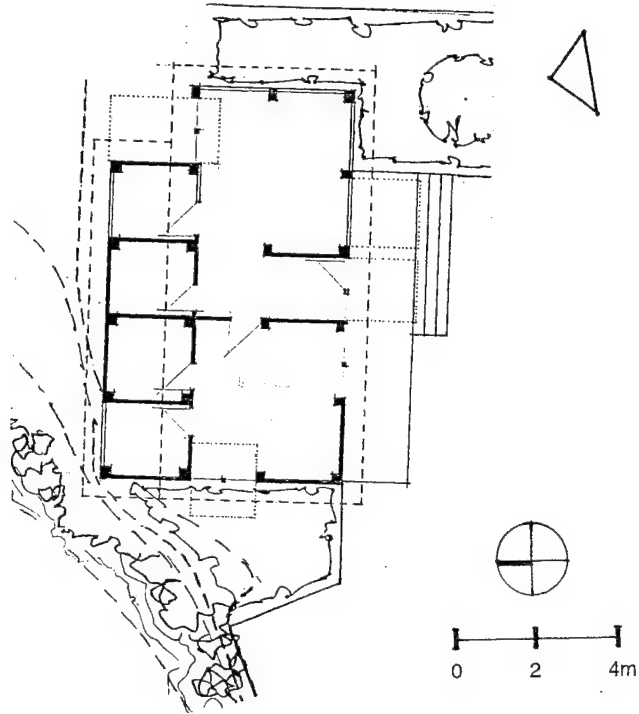


Recording Studio (fig. 64). A small audio-visual studio would be built that could support recordings with up to fifteen people participating. Here, staff and youth would learn to work with the expanding multi-media world. Because of its use, this building would be one of the few with actual glass windows. A small, electric air-conditioning unit would be installed to keep the studio comfortable during recording sessions.

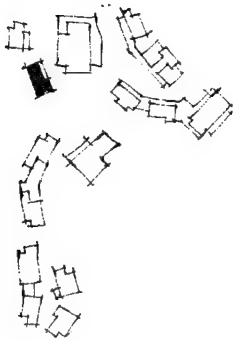




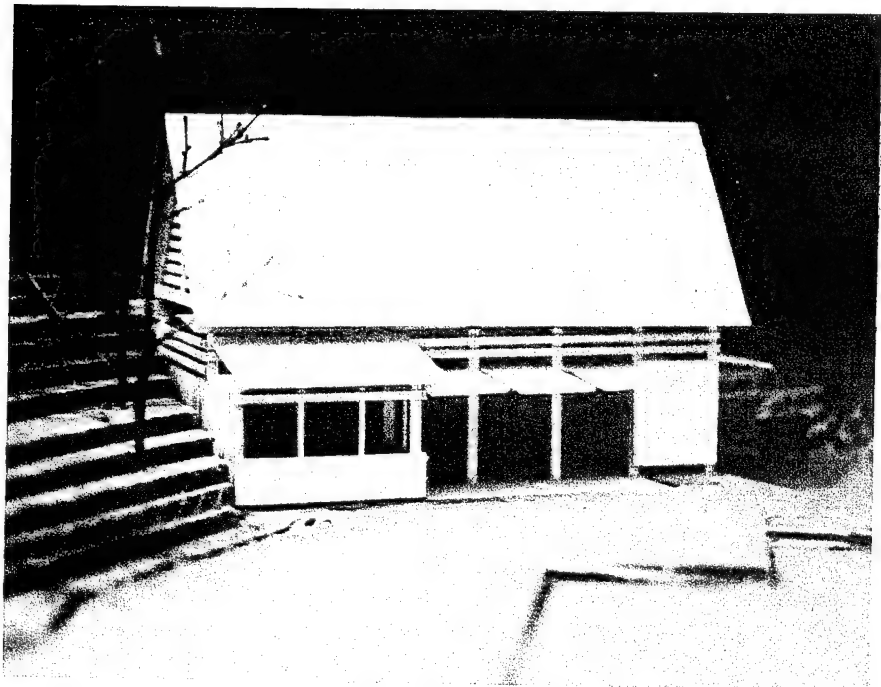
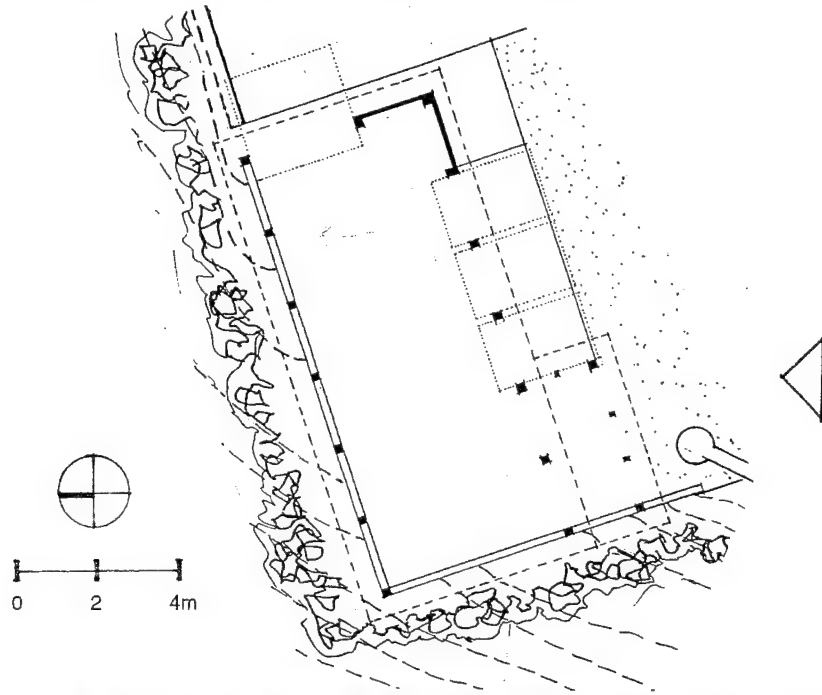
Clinic (fig. 65). Every group using the center would be required to provide a nurse during its stay. The clinic would be a place for treatment of minor injuries and a waiting place for people who may need to be taken to the local hospital.

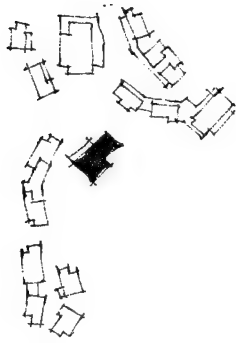


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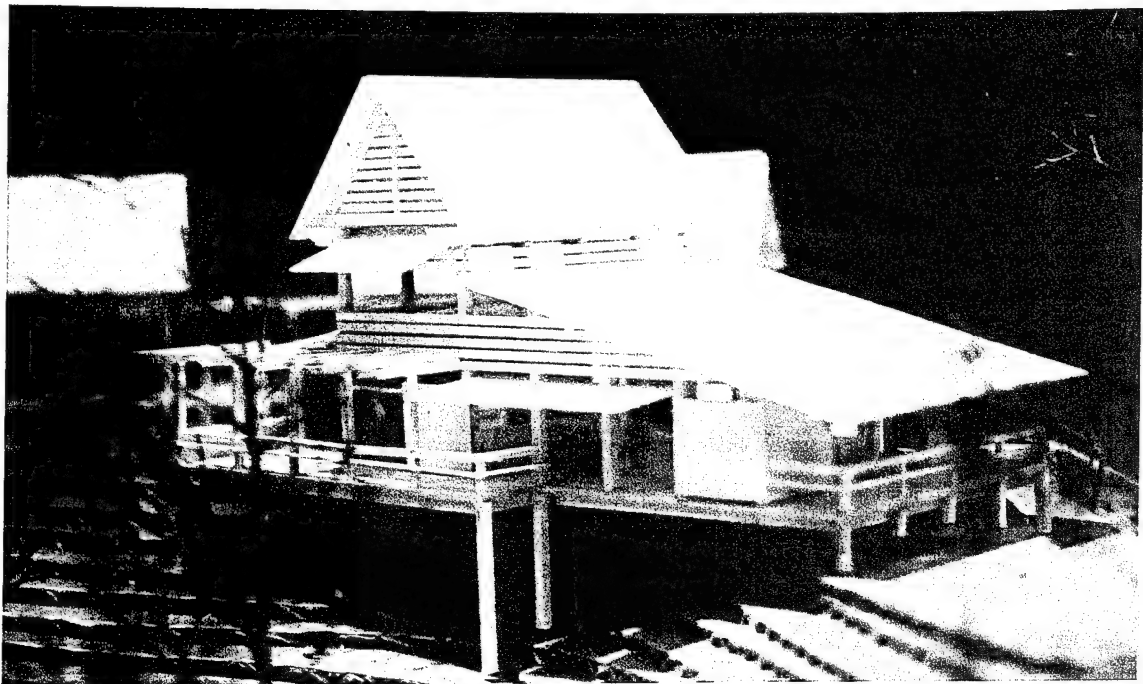
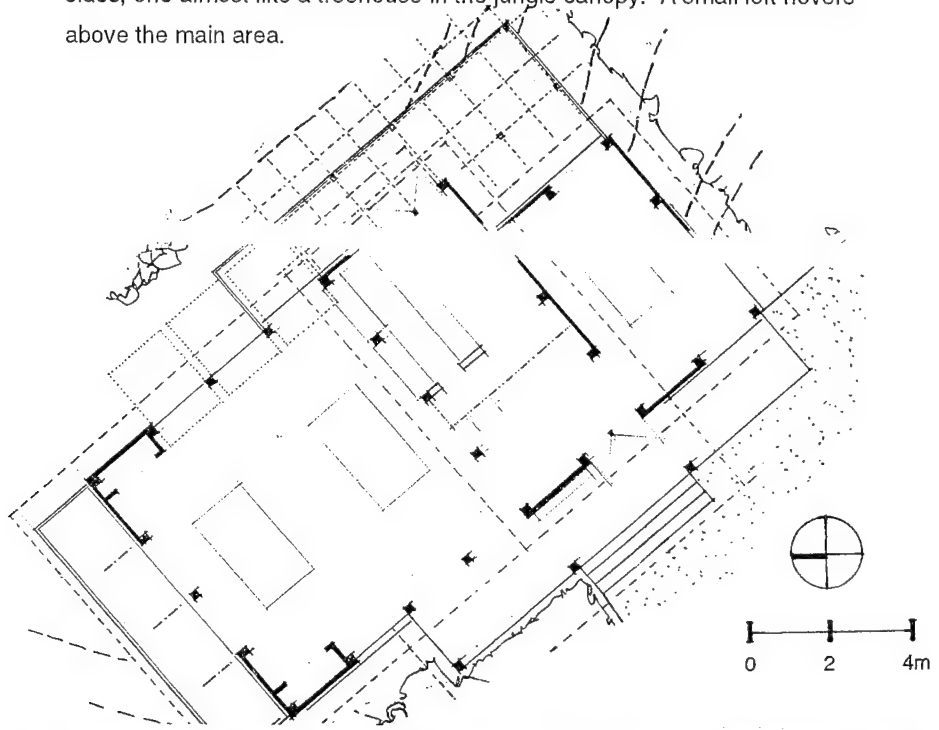


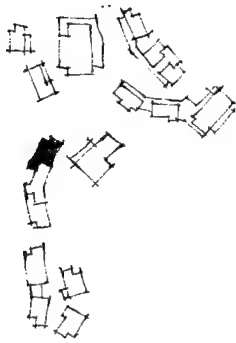
Shop (fig. 66). Screened from public view by the dining hall, the shop would be a place with woodworking equipment and repair tools to handle the daily maintenance of the center's facilities. A small office would be set near the front. The shop would be adjacent to a small service yard. Because of the nature of the work, this building would be on a concrete slab.



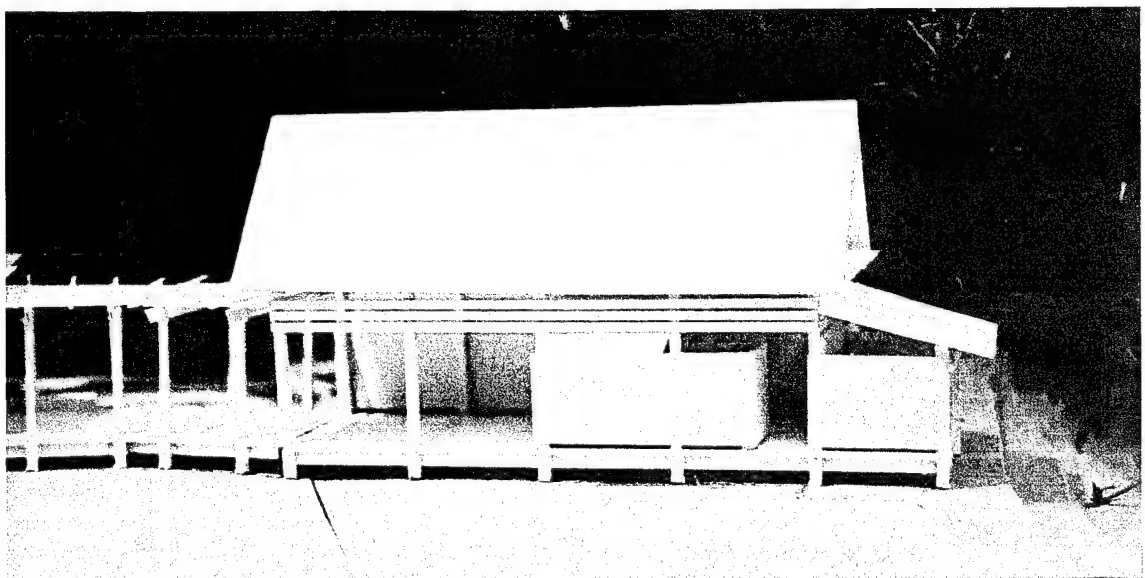
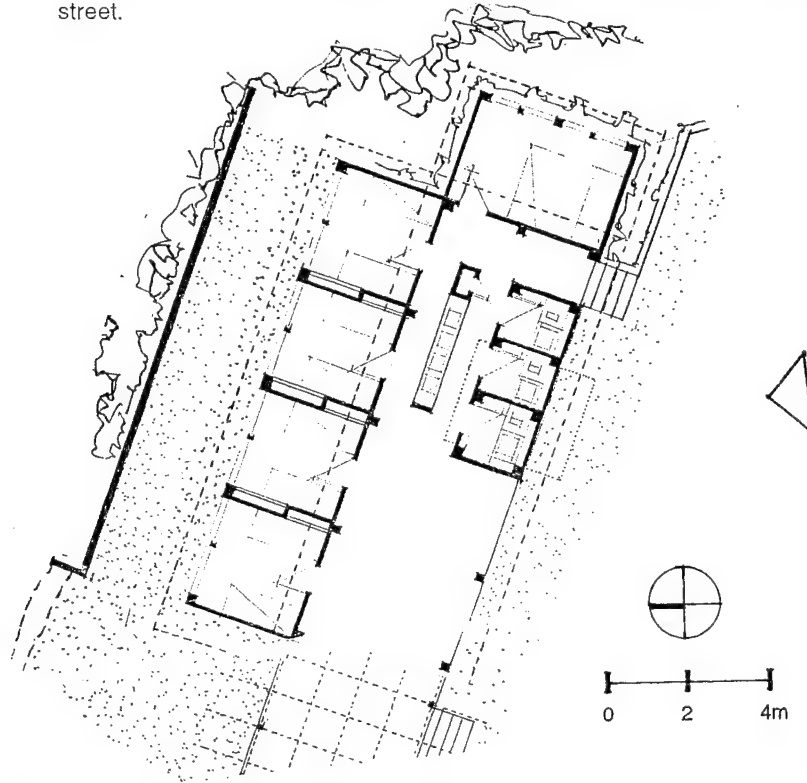


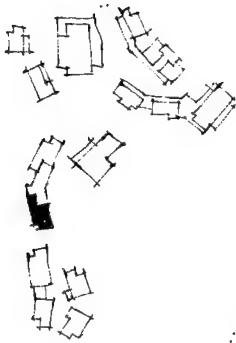
Canteen (fig. 67). The canteen, for use by youth during free time outside of structured activities, would be located up the hill from the main public areas to keep the noise generated by the game rooms (two ping-pong tables and a billiard table) from disturbing ongoing classes. It would have outdoor "rooms" on three sides; one almost like a treehouse in the jungle canopy. A small loft hovers above the main area.



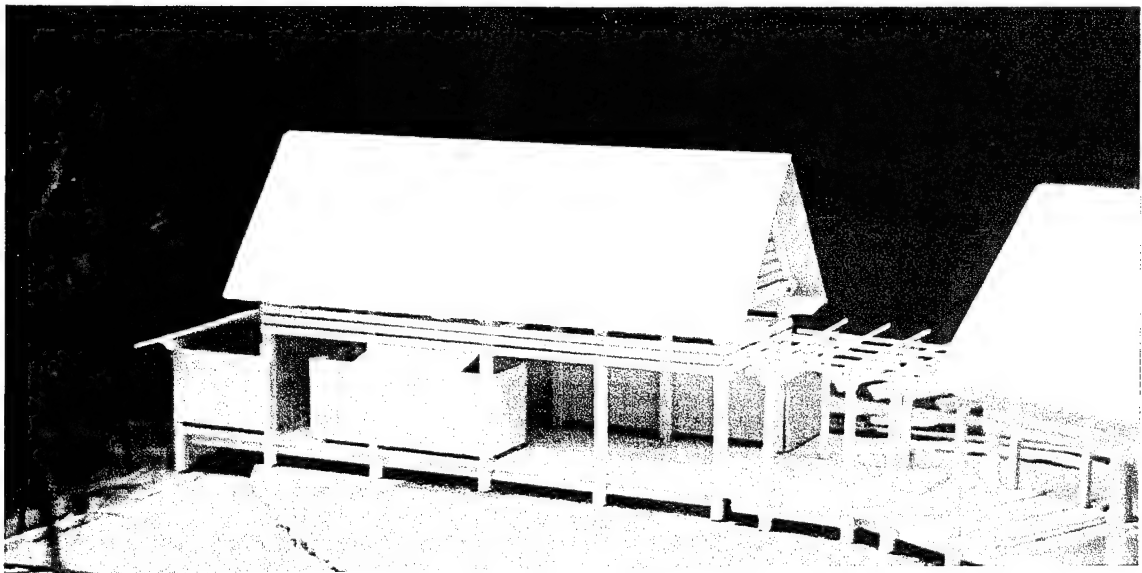
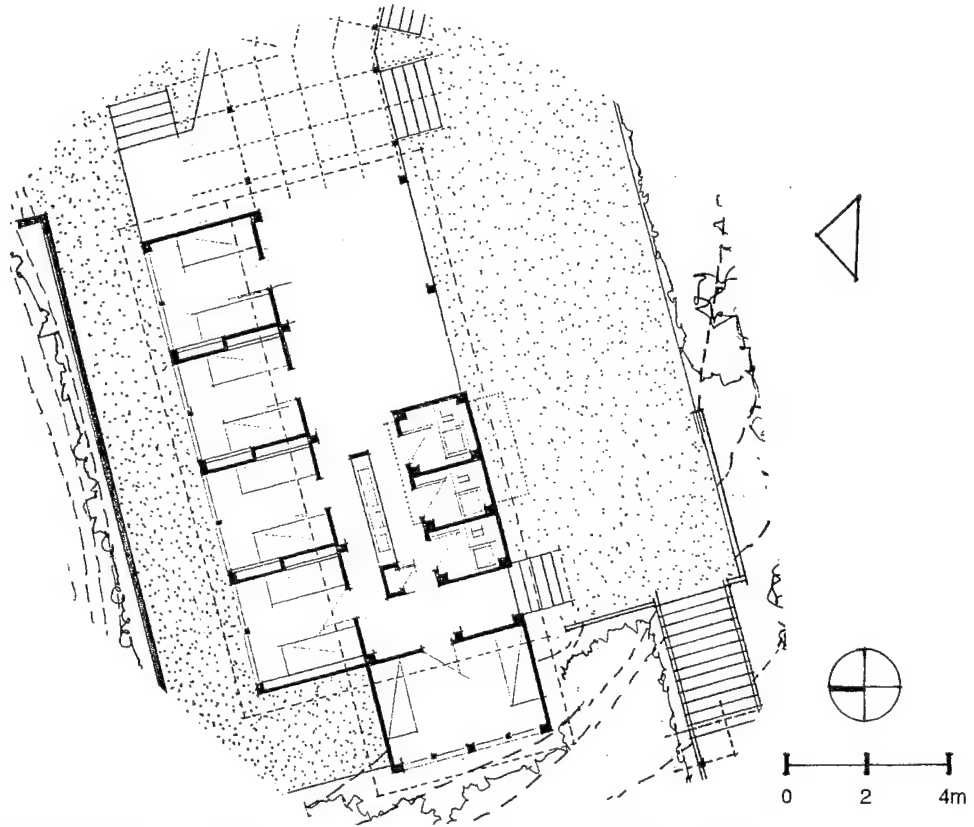


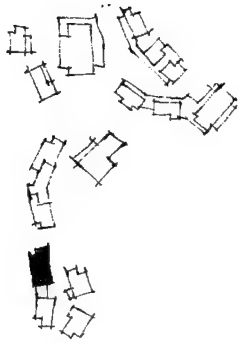
Youth Dormitory One (fig. 68). Designed using principles derived from Dyak longhouses, the dormitories would accommodate four people per room (20 per dormitory) in bunk beds set into individual alcoves. The large openings on one side of each room could be closed off by an insulated, sliding curtain. Bathing facilities would be set to one side. A shared public area would be nearest the street.



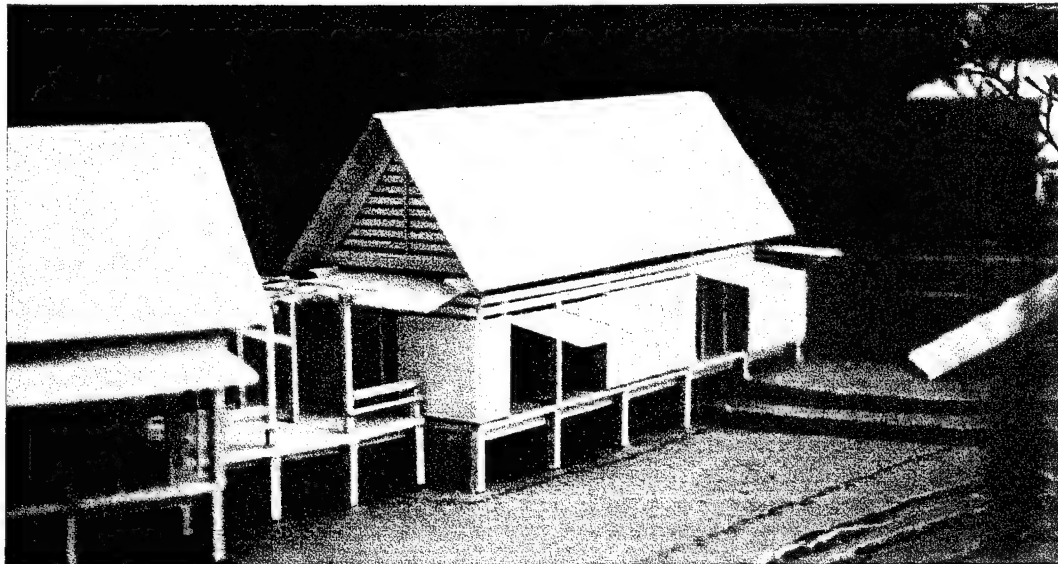
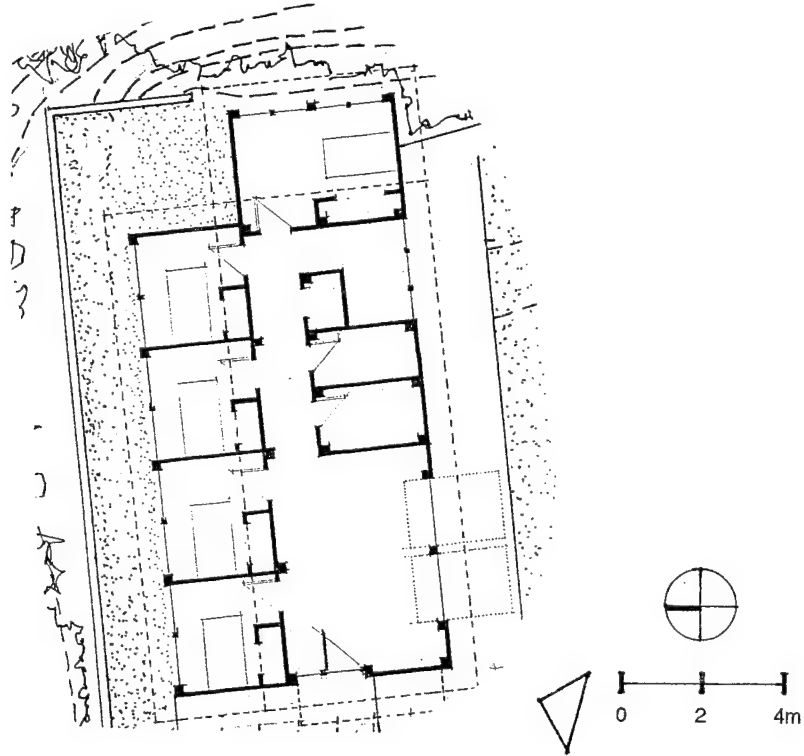


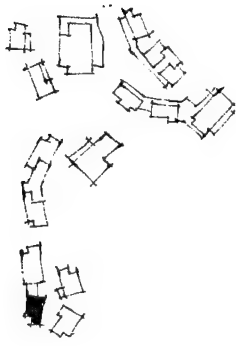
Youth Dormitory Two (fig. 69). Like the above, this building would accommodate twenty youth. The two buildings share a common deck, covered by a trellis that marks the entry. Behind the deck would be a small terrace, embraced by the stone retaining walls.



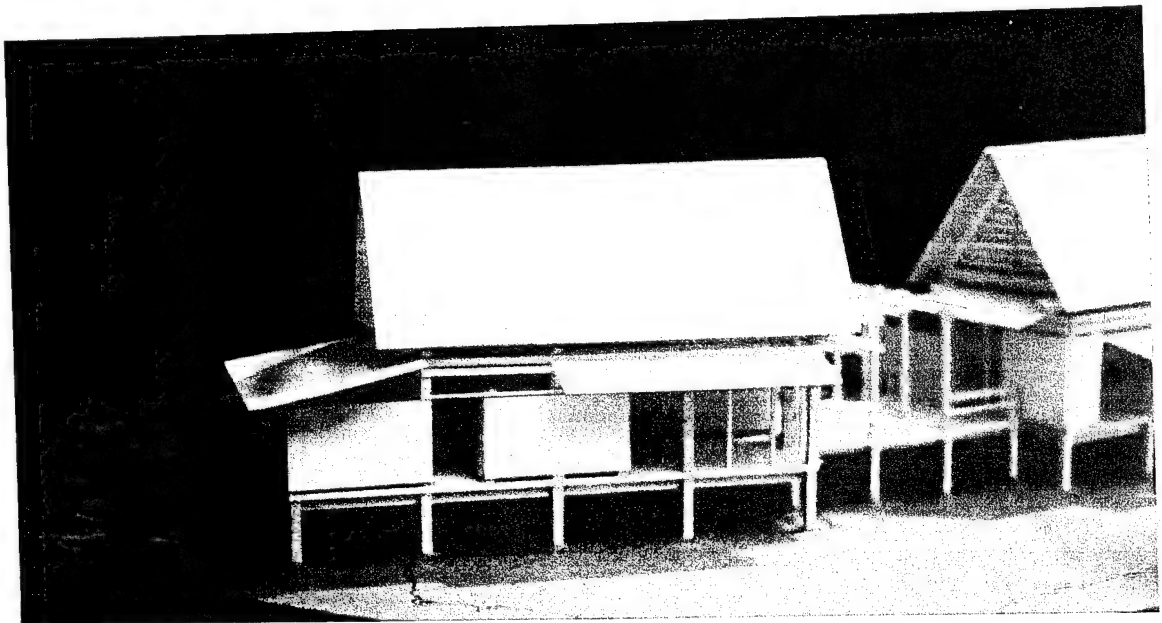
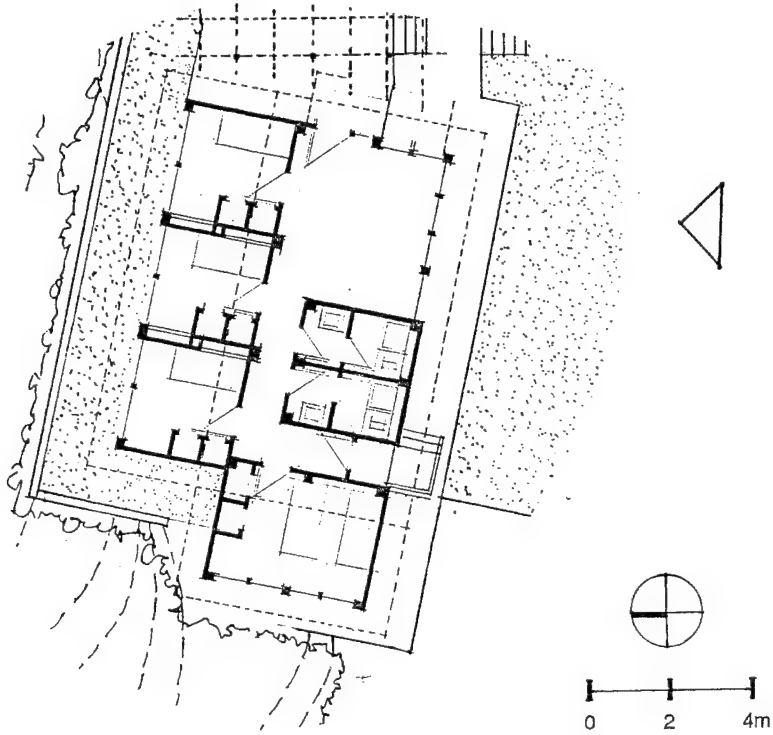


Guest Dormitory (fig. 70). Located in the most private area, the guest dormitory would accommodate five visitors to the center. These people may be speakers, invited guests, or head counselors. The layout would be based on principles similar to the youth dormitories but the rooms would be private.

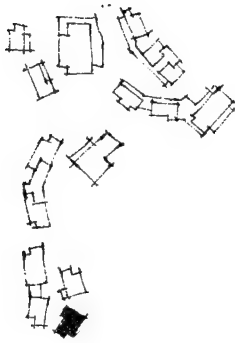




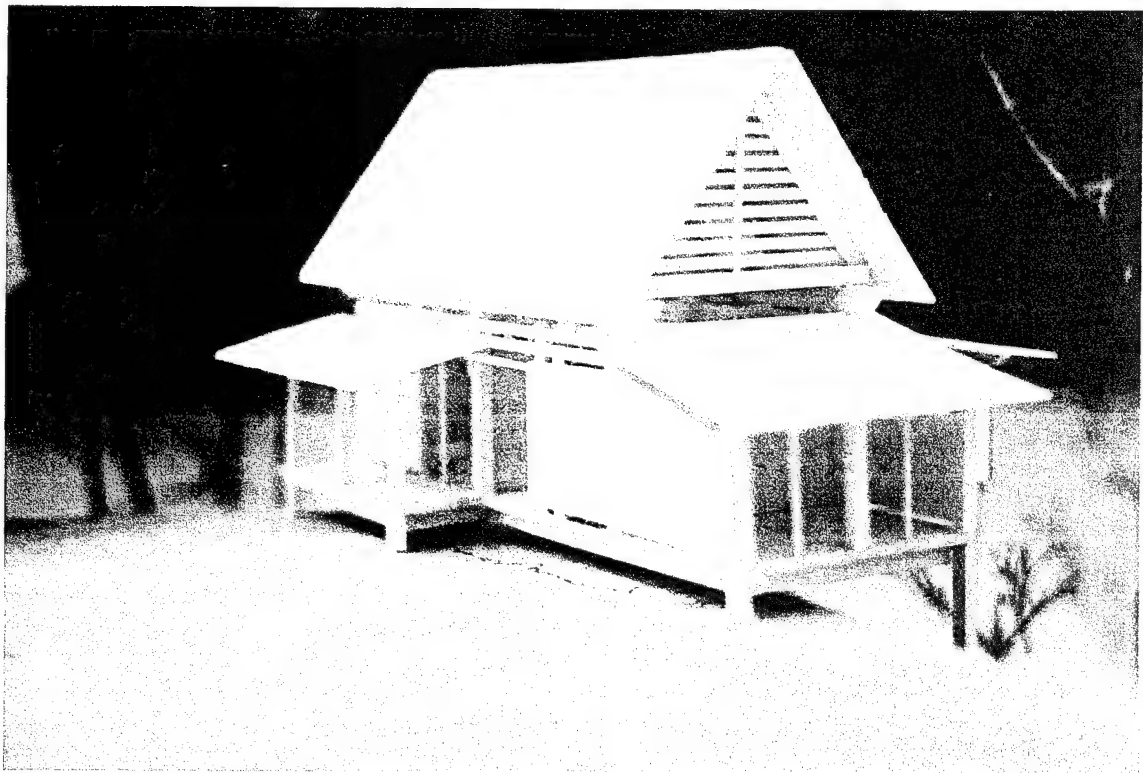
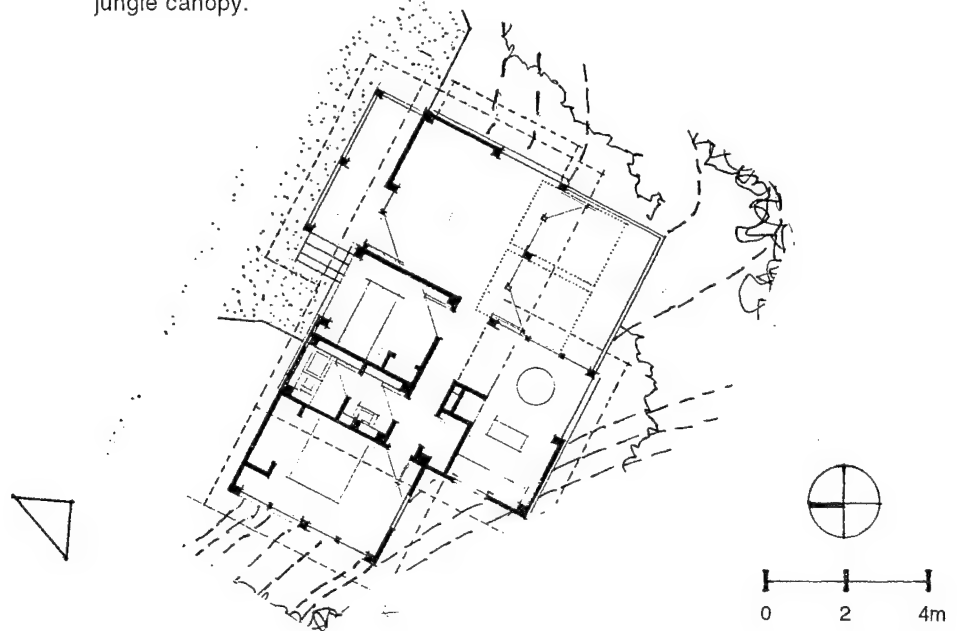
Staff Dormitory (fig. 71). Another variation of the longhouse theme, this building would be for eight permanent, single staff members. It would share an entry deck with the guest dormitory. Rooms would be shared by two people.

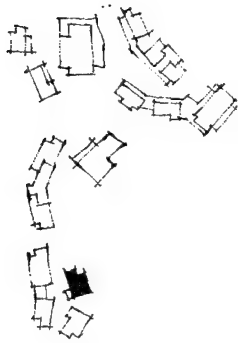


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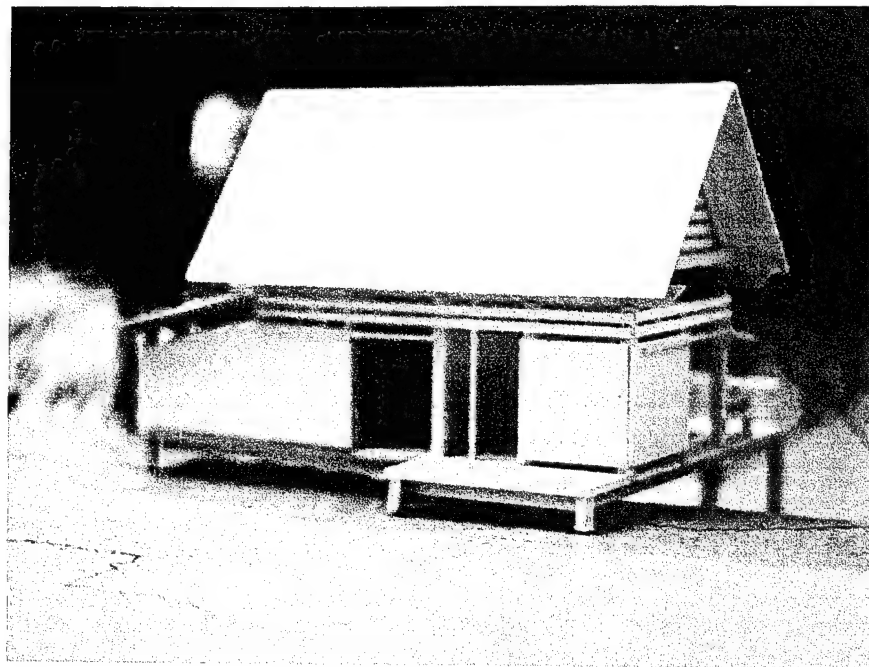
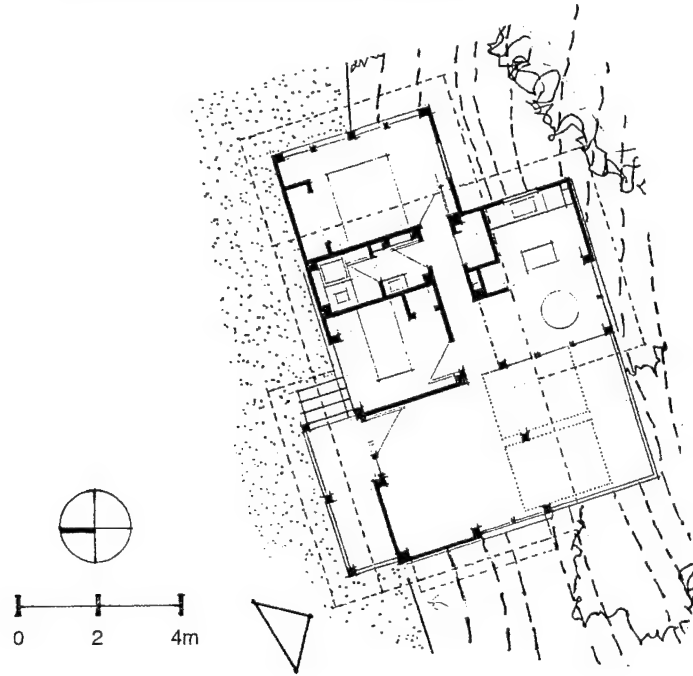


Staff House One (fig. 72). The center director would live in this two bedroom house. The layout respects the cultural need for zones of privacy. The kitchen and dining area could be closed by sliding curtains. A private deck peers into the jungle canopy.

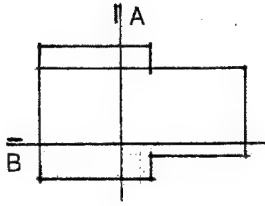




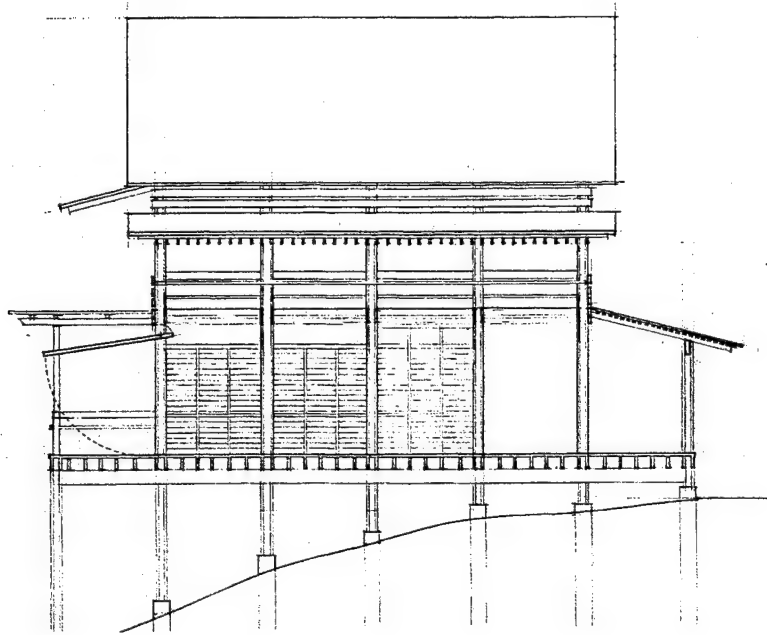
Staff House Two (fig. 73). Similar in use and size to staff house one, this building would be for the center's program director. Both of these houses would be closely related to their traditional counterparts primarily because their use and intent would be comparable. Fenestration openings would be reduced and spaces would be scaled to the size of a family.



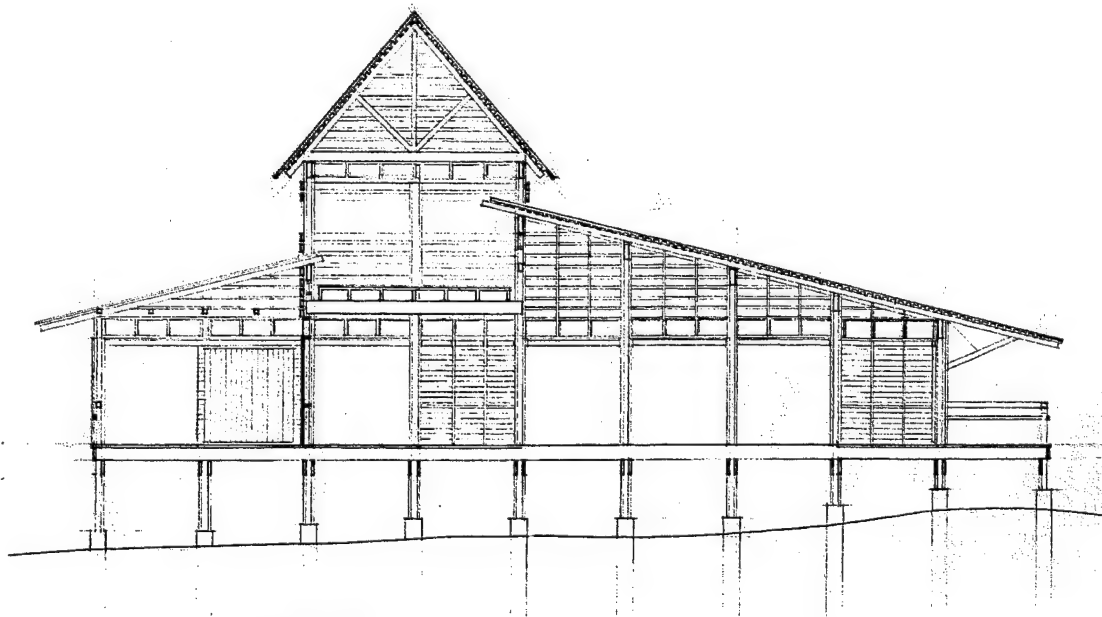
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Typical Building Sections (Canteen) (fig. 74). Most buildings would be elevated and built of milled lumber. Connections would be mortise-and tenon, reinforced by overlapping pieces sandwiched together to make the columns and floor beams. These sections of the canteen illustrate the typical tectonic language to be employed throughout the site.



Section A-A



Section B-B



EPILOGUE

Like the Ikat fabric that takes over a year to produce, this thesis has taken nearly that long to develop. In that time, I have refined a simple idea about improving cross-cultural design into a detailed model describing the process of interweaving the identified needs of the users with an architecture anchored in the requirements of the place, and transformed into a structure appropriate for its time. I have been incredibly fortunate to have an actual project to use as a vehicle for this study. Over the course of the past year, I have been able to develop, refine, and test my ideas concerning cross-cultural design. It is fitting now to reflect on some of those ideas.

WORKING ACROSS CULTURES

Clearly, the issue of working across cultures was paramount. Since there are now more opportunities for American architects to work across the globe, researching methods to facilitate such work seemed to be both timely and appropriate. Architects have skills that can be used to improve the built environment world-wide and opportunities to apply those skills should not be ignored. Moreover, as Gulgonen asserts, "The movement of architects and other artists abroad has, throughout history, contributed to a better cultural dialogue and enriched artistic achievements."¹ The challenge in projects like this is to understand the role of culture and how that culture influences both traditional and contemporary architecture. Helmy states, "Traditional buildings all share the same archetype yet each is a response to the contingencies of its own individuality and identity. They are culturally and geographically specific but essentially a-historic...the 'date' and authorships are not inherently important properties of them."² The idea of continuity and homogeneity in architectural form, at least in Indonesia, is a reflection of the local culture that emphasizes the group over the individual. This contradicts the view prevalent in many developed countries, according to Helmy:

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Being a conceiver of the form in a society which shares no common values and which is not centered on any thing in particular and certainly not on a belief in absolutes of any kind, the architect enjoys a great degree of freedom in expressing his own views.... This explains the great variety of "isms" which characterized modern architecture such as functionalism, rationalism, constructivism...and so on.³

By working within the requirements of the local culture, this project steps outside the debate over the latest architectural style and enters into a dialogue with the place and the people of the place. In my mind, this results in a much richer, more satisfying solution.

ON PARTICIPATION

Despite the criticisms of participatory planning and design, I could not imagine accomplishing this project in any other way. The youth center is not mine; it belongs to the *Yayasan* and to the youth of Kalimantan. What better way to find out what they want than through an open and structured inquiry? Since the local Kalimantan culture is based more on cooperation and community than on individualism, using participation as a method was ideal for this project. The members of the *Yayasan* were well prepared to work together to develop the vision, objectives, design goals, and program. Because the *Yayasan* had a shared vision and because they were already an integrated group, it was relatively easy to secure commitments, reach consensus, and mobilize interests, which is what Hamdi predicts happens in such cohesive groups.⁴ The approach I took worked well for another reason, albeit almost by accident. Since I feared getting deeply entrenched in design solutions while in Indonesia, mainly because I wanted to keep my options open once I returned to Berkeley for the thesis studio, we decided not to get caught up in detailed design issues. We spent our time focusing on broader topics that influenced the entire process. Since the members of the *Yayasan* were not designers nor did they have time to actively participate in the finer architectural details, involving them in making decisions about such issues would not have been the best use of my limited time in Indonesia and could have been counterproductive.⁵ Members of the *Yayasan* entrusted me with the task of completing the actual design in accordance with the agreed-upon design goals. On another project, the composition of the group would be different and a process where more detailed design decisions are made may be more appropriate. This is an issue that needs to be addressed and resolved by the entire team early on in the process in order to set expectations and responsibilities accordingly. One critique of participation worth addressing deals with the value of client input. Comerio found that the criticism most projects based on participation receive "...is that for all the collaboration, the

inhabitants have not had a perceptible effect on the architecture. In other words the designer's hand is evident."⁶ In this project, because the *Yayasan's* goals were similar to what I would have wanted anyway, the distinction between what is mine and what is theirs is nebulous. Obviously, the detailed design is the product of my work. But the goals that influenced that design were developed by the users. In this regard, the users had a large impact on the final outcome. For example, the goals of incremental growth and variable density impacted the final outcome in significant ways. Looking back, I don't know how I would have responded had our goals clashed. If, for instance, the *Yayasan* wanted a few large buildings, I would have accommodated that desire and created a responsive architecture. But I also know that I would have offered my opinions as to why that may not be the best solution.

WHERE AM I IN THE PROJECT?

At my final design review, Margaret Crawford asked me to explain where I was in this project. It was an interesting question and one worth commenting on here. The quest for notoriety through architectural design is primarily a modern notion and it is a position that I find disturbing. Architects should concern themselves with making places that support life, not with making personal monuments. This reaction against creating an architecture that expresses an obvious individuality is one example of my personal belief influencing the project. I could have spent little time working with the users and even less time studying the vernacular. Looking back, this may have been an easier road. One member of the EMI team could not see the value in spending so much of our time in meetings when we could be designing. After all, he thought we were the experts brought in to solve a problem. Nearly every day I had to endure his harassment. But this project is not about solving a problem, it is about translating a story of hope into something real.⁷ And it takes time to listen to this story. My personal beliefs are also made manifest in the final design. The architecture I created shows a clear respect to the region and climate. The layout and buildings are anchored in the vernacular language and provide a continuity among building cultures. I could have taken a different position, but why? To show my independence and originality? No, what I wanted to do was respond to the people and to the place. Arguably, this approach is much easier in a region where the building culture has an inspiring clarity and a simple beauty. Were this project in another place where the vernacular lessons may be ambiguous and contradictory, my idea of anchoring may not be as useful. Finally, through the subtle transformations that I made, the project undoubtedly reflects my ideas and my priorities.

MEETING RECOGNIZED NEEDS

For my needs, this project has been an excellent case study in cross-cultural design. Because it is only one example, the details of this intervention may not be transferable, but I believe that the broad themes are generalizable. The project has also responded to Sudradjat's plea for an Indonesian architecture that "...addresses the problems of its own time with the means at its disposal, and today the real tasks are those arising from a mass exodus from rural to urban areas."⁸ This project will be a place of retreat for young people affected by this exodus in Kalimantan. Finally, this project met the needs of the *Yayasan*. The next step, and more difficult one for the *Yayasan*, is to see the design through construction. At our last meeting, the President of the *Yayasan*, I. Made Sukarya, summarized his feelings about our role in the project and the project's future:

I really appreciate your presence with us. Because of our oneness in God we have been able to meet together and make very much progress. I know each of you [EMI team members] came from different locations and you came from a culture different from ours yet we feel a oneness with you despite our language differences -- which was a curse from God starting at the tower of Babel. I must thank you a thousand times for all you have done and for coming here. We feel that the will of God will be worked through this plan. We hope to see many results -- not just after 15 years but very quickly. We are thrilled that you came to help us. Terima kasee [thank you].⁹

REFERENCE NOTES

CHAPTER ONE

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17. Rapoport (1992, 35).
18. Turner (1995, 37).
19. Sudradjat (1991, 210). Sudradjat's dissertation is a valuable resource. It presents a "multiple, rather than reductive view" (ii) and informs the reader of the political and social forces that influenced Indonesian architecture.
20. Stea & Turan (1986, 92).
21. Rapoport (1986, 160).
22. Rapoport (1992, 36).
23. Sudradjat (1991, 90).
24. Sudradjat (1991, 20).
25. Sudradjat (1991, 156).
26. Sudradjat (1991, 186).
27. Thomas (1989, 242).
28. Sudradjat (1991, 18).
29. AlSayyad & Boudier (1989, 9).
30. Turner (1995, 28).
31. Turner (1995, 44).
32. Soemardjan & Breazeale (1993, 6).
33. Zich (1989, 104).
34. Sudradjat (1991, 195).
35. Turner (1995, 18).
36. Rapoport (1969, 10).
37. Beng (1994a, 61).
38. Abel (1986, 37).
39. Rapoport (1969, 41).
40. Abel (1986, 38).
41. Abel (1986, 37).
42. Soemardjan & Breazeale (1993, 118).
43. Turner (1995, 45).
44. Soemardjan & Breazeale (1993, 86).
45. Turner (1995, 52).
46. Rapoport (1969, 16).
47. Powell (1992, 12).
48. Turner (1995, 53).
49. Soemardjan & Breazeale (1993, 202).
50. Sudradjat (1991, 193).
51. Turner (1995, 30).
52. Rapoport (1969, 11).
53. The description for this project comes from the report in *Architecture for a Changing World*, edited by Steele (1992, 141).
54. Steele (1992, 143).
55. Rapoport (1992, 43).
56. Rapoport (1986, 162).
57. Turner (1995, 52).
58. Soemardjan & Breazeale (1993, 197).
59. Vitzthum (1994, 28).
60. Vitzthum (1994, 28).
61. Rapoport (1992, 35).
62. Waterson (1989, 480).
63. Sudradjat (1991, 90).
64. Soemardjan & Breazeale (1993) analyze the effects of eight national

development programs on rural villages. Interestingly, they used six survey villages in their research and rather than rely on government statistics and quantitative surveys they used qualitative methods such as informal, detailed interviews, observations of daily life, and collection of family profiles. The stories that emerge eloquently describe how the average Indonesian villager has coped with these programs and with modernization.

65. Waterson (1989, 480).
66. Soemardjan & Breazeale (1993, 207).
67. Soemardjan & Breazeale (1993, 197).
68. Turner (1995, 55).
69. Soemardjan & Breazeale (1993, 148).
70. Turner (1995, 53).
71. Turner (1995, 49).

72. Usat (1996).
73. Usat (1996).
74. Zich (1989, 114).
75. Zich (1989, 114).
76. Soemardjan & Breazeale (1993, 139).
77. Soemardjan & Breazeale (1993, 37).
78. Usat (1996).
79. Soemardjan & Breazeale (1993, 27).
80. Turner (1995, 50).
81. Zich (1989, 114).
82. Powell (1985, 71).
83. Zich (1989, 116).
84. Zich (1989, 116).
85. Turner (1995, 51).
86. Turner (1995, 755).
87. Helmy (1994, 28).
88. Stea & Turan (1986, 92).
89. Vitzthum (1994, 53).
90. Helmy (1994, 44).
91. Rapoport (1986, 159).

CHAPTER TWO

1. Hamdi (1991, 149).
2. Hamdi (1991, 149).
3. Schneekloth & Shibley (1995, 16). The authors believe that the selection of a method is an ethical choice and that any method can be used for many purposes and the results may be positive or negative depending upon the application. Despite the opacity of their language at times, I found the book to be helpful.
4. Goethert & Hamdi (1988, 8). The authors developed the concept of *microplanning*, which is a community-based process of planning and design used to prepare programs for neighborhood upgrades quickly and in collaboration with the local residents. It is based on the idea of partnership and is intended to cut through the competing and conflicting interests of the myriad of players in the upgrading process. The book contains a reference manual that has many valuable ideas for practitioners interested in applying this form of participation.
5. Comerio (1984, 6).

6. Hamdi (1991, 75).
7. Wulz (1990, 39).
8. Alexander (1985). The Mexicali project is described in detail in *The Production of Houses*.
9. Comerio (1984, ii).
10. Comerio (1984, 31).
11. Schneekloth & Shibley (1995, 197).
12. Schneekloth & Shibley (1995, 198).
13. Comerio (1984, 23).
14. Schneekloth & Shibley (1995, 198).
15. Comerio (1984, 21).
16. Habraken (1972, 3).
17. Comerio (1984, 30).
18. Peña (1987, 82).
19. Comerio (1984, 23).
20. Comerio (1996).
21. Hamdi (1991, 84).
22. Hatch (1984, 8).
23. Habraken (1985).
24. Comerio (1987, 19).
25. Hamdi (1991, 56).
26. Peña (1987, 21).
27. Hamdi (1991, 84).
28. Hamdi (1991, 83).

29. Schneekloth & Shibley (1995, 16).
30. Hamdi (1991, 75).
31. Hamdi (1991, 81).
32. Schneekloth & Shibley (1995, 60).
33. Comerio (1984, 4).
34. Peña (1987, 19).
35. Hatch (1984, 8).
36. Hackney (1986, 29).
37. Schneekloth & Shibley (1995, 18).
38. Hamdi (1991, 81).
39. Peña (1987, 12).
40. Schneekloth & Shibley (1995, 193).
41. Peña (1987, 42).
42. Schneekloth & Shibley (1995, 198).
43. Peña (1987, 48).
44. Hamdi (1991, 110).
45. Schneekloth & Shibley (1995, 5).
46. Schneekloth & Shibley (1995, 14).
47. Alexander (1985, 124). Alexander says that he tried, through the entire Mexicali project, to create a process in which human feeling and human dignity come first. This was also a key focus of a studio I took with him during the fall of 1995. We developed plans for 130 apartment units in Frankfurt where the users could actually design their own homes. The concept was tested in Frankfurt and found by the users to be very satisfactory.
48. Hatch (1984, 4).
49. Schneekloth & Shibley (1995, 10).
50. Hamdi (1991, x).
51. Alexander (1985, 128).
52. Peña (1987, 55).
53. Goethert & Hamdi (1988, 42).
54. Hamdi (1991, 80).
55. Schneekloth & Shibley (1995, 14).
56. Hamdi (1991, 75).
57. Sanoff (1978, 149).
58. Schneekloth & Shibley (1995, 16).
59. Goethert & Hamdi (1988, 27).
60. Sanoff (1978, 149).
61. Goethert & Hamdi (1988, 43).
62. Schneekloth & Shibley (1995, 59).
63. Schneekloth & Shibley (1995, 61).
64. Sanoff (1978, 149).
65. U.S. Air Force (1994, 60).
66. U.S. Air Force (1994, 61).
67. Peña (1987, 157).
68. Goethert & Hamdi (1988, 28).
69. Hamdi (1991, 103).
70. Hamdi (1991, 86).
71. Schneekloth & Shibley (1995, 13).
72. Friedman (1984, 153).
73. Friedman (1984, 153).
74. Schneekloth & Shibley (1995, 6).
75. Schneekloth & Shibley (1995, 7).
76. Peña (1987, 52).
77. Peña (1987, 82).
78. Peña (1987, 56).
79. Goethert & Hamdi (1988, 27).
80. Peña (1987, 165).
81. Peña (1987, 170).
82. Peña (1987, 56).
83. Goethert & Hamdi (1988, 27).
84. Peña (1987, 80).
85. Peña (1987, 81).
86. Hamdi (1991, 113).
87. Peña (1987, 30). Peña offers a complex analytical system that covers the four considerations of function, form, economy, and time and overlays them with a five-step inquiry that searches for goals, facts, concepts, needs, and the problem statement. Taken together, all of these considerations form a framework for information that covers the breadth and depth of the problem. However, I found it to be too cumbersome to use in my case.
88. Schneekloth & Shibley (1995, 9).
89. Hamdi (1991, 41).
90. Peña (1987, 158).
91. Comerio (1984, 29).
92. Peña (1987, 58).
93. Schneekloth & Shibley (1995, 13).
94. Goethert & Hamdi (1988, 20).
95. Schneekloth & Shibley (1995, 7).
96. Hackney (1986, 29).
97. Hamdi (1991, 85).
98. Hatch (1984, 8).
99. Schneekloth & Shibley (1995, 10).
100. Peña (1987, 46).
101. Peña (1987, 45).
102. Goethert & Hamdi (1988, 25).
103. Hamdi (1991, 119).
104. Comerio (1987, 27).
105. Schneekloth & Shibley (1995, 9).
106. Schneekloth & Shibley (1995, 15).
107. Helmy (1994, 33).

CHAPTER THREE

1. Agan (1996).
2. Agan (1996).
3. Swenson (1996).
4. Immanuela (1996)
5. The process I utilized during the visioning and goal-setting phases were based on a format that I have used at strategic planning sessions in previous projects. *The Team Handbook* by Peter Scholtes is a valuable resource for practitioners involved in building teams and developing organizational missions.
6. Hamdi (1991, 86).
7. These concepts are similar to what Peña calls programmatic concepts. These are abstract ideas "intended mainly as functional solution's to client's performance problems without regard to physical response." (1987, 62). Peña identifies 24 such concepts that 'seem to crop up on nearly every project' (1987, 63). I used these and other concepts that have emerged from my previous work as a starting point for dialogue about conceptual solutions to this project.
8. I briefly discussed Peña's framework in chapter two and in reference note 87 for that chapter. While I believe the overall framework is too complicated, the focus on the four broad categories of function, form, economy, and time is a good starting point for any designer involved in the planning process. With these four categories, a unique inquiry can be established that is comprehensive.
9. Peña (1987, 33).
10. Peña (1987) utilizes the analysis cards to graphically document concepts. Alexander (1977) documents his patterns with simple and easy to understand graphics that state the essence of the pattern.
11. Incremental growth is more than a building strategy. As an idea, it has roots in Indonesian life. For example, an Indonesian aphorism, *sedikit sedikit lama-lama menjadi bukit*, means add a little bit upon a little bit and together they eventually become as big as a mountain. Soemardjan and Breazeale (1993, 164).
12. Alexander (1977) identifies a pattern he calls "site repair" which calls for development to be located not in the best location on the site but in the worst. While the *Yayasan* wanted to keep some of the best areas free of development they did not specifically request that the buildings be located in an area in need of repair.
13. This concept of promoting traditional cultures, such as Kalimantan style, is a result of a nationwide desire to maintain and preserve traditional cultures in the face of modernization. Sudradjat (1991, 97).
14. Although expensive, the *Yayasan* members were clear in their request for hidden utilities. They even directed me to a small resort in Balikpapan that uses a precast concrete trench system to conceal the utility lines.
15. Hamdi (1991, 82).
16. Schneekloth & Shibley (1995, 10).
17. Goethert & Hamdi (1988, 42).
18. Goethert & Hamdi (1988, 25).
19. Schneekloth & Shibley (1995, 200).
20. Hamdi (1991, 147).
21. Goethert & Hamdi (1988, 84). Not only do the authors encourage designers modulate workshops but they say that professionals have an obligation to to influence the outcome of workshops in particular by encouraging some priorities and discouraging others based on our previous experience. They are clear, however, that this influencing must be done to the benefit of the process and the product and not to the benefit of the designer.
22. The ten workshops I conducted were structured around the following broad themes:
 1. Project Introduction
 2. Vision Statement
 3. Goal Setting
 4. Design Goal Definition: Part I
 5. Design Goal Definition: Part II
 6. Youth Workshop I
 7. Youth Workshop II

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|------------------------------|---|
| 8. Detailed Program Analysis | 25. Schneekloth & Shibley (1995, 11). |
| 9. Preliminary Master Plan | 26. Peña (1987, 43). |
| 10. Review and Approval | 27. Peña (1987, 54). |
| 23. Hamdi (1991, 81). | 28. Soemardjan and Breazeale (1993, 199). |
| 24. Hamdi (1991, 103). | |

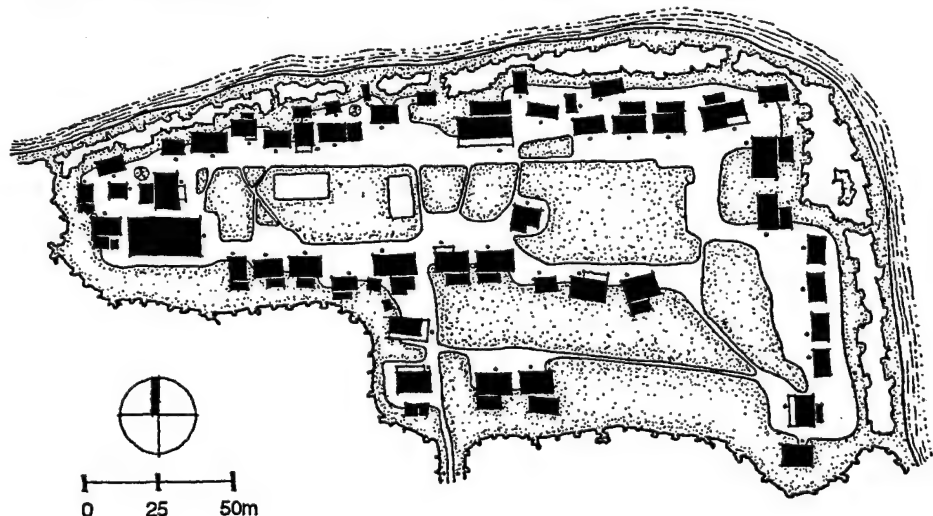
CHAPTER FOUR

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|--------------------------------------|---------------------------------------|
| 1. Powell (1992, 54). | 10. Rapoport (1969, 86). |
| 2. Ozkan (1985, 14). | 11. Beng (1994a, 56). |
| 3. Beng (1994a, 13). | 12. Jain (1985, 48). |
| 4. Koenisberger, et. al (1973, 213). | 13. Koenisberger, et. al (1973, 216). |
| 5. Rapoport (1969, 19). | 14. Fry & Drew (1964, 48). |
| 6. Rapoport (1969, 47). | 15. Beng (1994a, 56). |
| 7. Powell (1985, 181). | 16. Powell (1992, 84). |
| 8. Powell (1992, 40). | 17. Acocella (1992, 20). |
| 9. Koenisberger, et. al (1973, 213). | |

CHAPTER FIVE

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|-----------------------------|---|
| 1. Powell (1985, 181). | 14. Beng (1995, 34). |
| 2. Helmy (1994, 37). | 15. Venturi (1977, 43). |
| 3. Rapoport (1992, 36). | 16. Venturi (1977, 13). |
| 4. Rapoport (1992, 44). | 17. Lyndon & Moore (1994, 34). |
| 5. Sudradjat (1991, 97). | 18. Beng (1994a, 56). |
| 6. Vitzthum (1994, 28). | 19. Rapoport (1992, 41). |
| 7. Vitzthum (1994, 44). | 20. Fraser (1968, 9). |
| 8. Waterson (1989, 479). | 21. Fraser (1968, 8). |
| 9. Helmy (1994, 35). | 22. Below is the village plan for Pepa Baru (fig. 75). Note its geometric pattern which is at odds with the social structure. This situation is uncommon in other villages. |
| 10. Beng (1995, 35). | |
| 11. Curtis (1985, 73). | |
| 12. Sudradjat (1991, 189). | |
| 13. Sudradjat (1991, 211). | |

Fig. 75: The site plan for Pepa Baru exhibits a much more geometric structure than that of Long Sule (p.72). The villagers I talked with preferred Long Sule's layout.



23. Fraser (1968, 47).
24. In *A Pattern Language*, Alexander, et. al. (1977) identify a pattern called "Pedestrian Streets." In this pattern, the authors instruct designers to "Arrange public buildings so that they form pedestrian streets with many entrances and open stairs directly from the upper stories to the street..." [490]. While the villagers were unfamiliar with this book, they were familiar with the concept -- which is nearly universal in its application.
25. Clement-Charpentier (1989, 150).
26. Again, Alexander, et. al. (1977) present a similar pattern labeled "Entrance Transition" They note that "Buildings, and especially houses, with a graceful transition between the street and the inside, are more tranquil than those which open directly off the street" [549].
27. Fisher (1994, 72).
28. Rapoport (1969, 86).
29. Alexander, et. al (1977, 277).
30. Powell (1992, 28).
31. Beng (1994a, 55).
32. Rapoport (1969, 134).
33. Beng (1994a, 56)
34. Alexander, et. al. (1977, 572).
35. Lyndon & Moore (1994, 238).
36. Krier (1993, 66).
37. Mowla (1985, 161).
38. Vitzthum (1994) found this to be the case with the Balinese people as well.
39. Koenisberger, et. al (1973, 216).
40. Sudradjat (1991, 94).
41. Dawson & Gillow (1994, 13).
42. Alexander, et. al. (1977) developed a pattern called "Intimacy Gradient" that conceptually is similar to the principle of zones of privacy in that it calls for a sequence of spaces from public to private, but in that pattern, bedrooms are the most private and the kitchen and dining room are considered more public. This is one of the few cases where the local culture contradicts one of Alexander's patterns.
43. Beng (1994a, 13).
44. Mazria (1991, 74).
45. Dawson & Gillow (1994, 30).
46. Helmy (1994, 37).

CHAPTER SIX

1. Abel (1986, 39).
2. Helmy (1994, 51).
3. Frampton (1983, 29).
4. Weinberger (1987, 43).
5. Ozkan (1985, 12).
6. Curtis (1985, 74).
7. Sudradjat (1991, 177).
8. Powell (1985, 185).
9. Abel (1986, 3).
10. Abel (1986, 38).
11. Vitzthum (1994, 29).
12. Black & Pontikis (1994, 73).
13. Bourdier & AlSayyad (1989, 14).
14. Ozkan (1985, 13).
15. Bower (1986, 51).
16. Bower (1986, 51).
17. Ozkan (1985, 14).
18. Helmy (1994, 42). Helmy uses the minaret as an example. If treated semantically as an element of meditation, or as a vertical link between earth and sky, the form can accept a new geometry in keeping with the entire design and the minaret's semantic content.
19. Sudradjat (1991, 216).
20. Abel (1986, 43).
21. Ozkan (1985, 8).
22. Beng (1994a, 21).
23. Ozkan (1985, 8).
24. Abel (1986, 37).
25. Abel (1986, 37).
26. Fida Ali (1985, 93).
27. At my final review, I was accused of being too pragmatic. The focus on integrating the architecture into the language of the area, even with attention to technical issues of climate and site development, was questioned as lacking a "deeper" philosophy. I disagree.

INTERWEAVING

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|--------------------------|----------------------------|
| 28. Beng (1994b, 5). | 40. Sudradjat (1991, 199). |
| 29. Powell (1985, 70). | 41. Sudradjat (1991, 199). |
| 30. Frampton (1983, 21). | 42. Beng (1994a, 15). |
| 31. Fisher (1994, 100). | 43. Curtis (1985, 74). |
| 32. Frampton (1983, 20). | 44. Frampton (1983, 21). |
| 33. Frampton (1983, 21). | 45. Beng (1994a, 13). |
| 34. Venturi (1977, 13). | 46. Beng (1995, 29). |
| 35. Ozkan (1985, 12). | 47. Rudolph (1985, 43). |
| 36. Curtis (1985, 74). | 48. Rudolph (1985, 43). |
| 37. Vitzthum (1994, 29). | 49. Waterson (1989, 486). |
| 38. Powell (1985, 117). | 50. Rapoport (1969, 12). |
| 39. Abel (1986, 39). | 51. Sudradjat (1991, 216). |

EPILOGUE

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|---|---------------------------------------|
| 1. Faghih & Gulgonen (1991, 50). | harmful to any project. |
| 2. Helmy (1994, 36). | 6. Comerio (1987, 19). |
| 3. Helmy (1994, 34). | 7. Schneekloth & Shibley (1995, 62). |
| 4. Hamdi (1991, 83). | The authors claim that changing |
| 5. Hamdi (1991, 104). Hamdi thinks | dreams into realities is delicate but |
| that asking people to make decisions | not impossible work. I agree. |
| that they are not interested in or have | 8. Sudradjat (1991, 215). |
| little knowledge about can actually be | 9. Sukarya (1996). |

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